

**THE RAILWAY GAZETTE**

A Journal of Management, Engineering and Operation  
INCORPORATING

**Railway Engineer** • **TRANSPORT** • **The Railway News**

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An index to the seventy-eighth volume of THE RAILWAY GAZETTE, covering the issues from January 1 to June 25, 1943, has been prepared, and is now available free of charge on application to the Publisher

## GOODS FOR EXPORT

The fact that goods made of raw materials in short supply owing to war conditions are advertised in this paper should not be taken as indicating that they are available for export

## POSTING "THE RAILWAY GAZETTE" OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE possesses the necessary permit and facilities for such dispatch.

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas

## REDUCTION IN SIZE OF PAGE

To economise in paper our readers will observe a slight reduction in the size of THE RAILWAY GAZETTE in that the size of the page has been reduced from 9 in. x 12 in. to 8½ in. x 11½ in. The type area of the page remains the same, namely, 7 in. x 10 in., but the surrounding margins have been reduced. This of course detracts from the appearance of the paper, but is one of the exigencies of the war

## TO CALLERS AND TELEPHONERS

Until further notice our office hours are:

Mondays to Fridays 9.30 a.m. till 5.30 p.m.

The office is closed on Saturdays

## ANSWERS TO ENQUIRIES

By reason of staff shortage due to enlistment, we regret that it is no longer possible for us to answer enquiries involving research, or to supply dates when articles appeared in back numbers, either by telephone or by letter

## ERRORS, PAPER, AND PRINTING

Owing to shortage of staff and altered printing arrangements due to the war, and less time available for proof reading, we ask our readers' indulgence for typographical and other errors they may observe from time to time, also for poorer paper and printing compared with pre-war standards

## Railway Charges and Government Policy

IN the House of Commons on July 13, the Prime Minister was asked whether he would consider the appointment of a Select Committee to enquire into the advisability of introducing equalised rates of freight charges for railway transport as a means of encouraging the economic rehabilitation of the countryside, and the redistribution of industry. Mr. Churchill said that he did not think it would be opportune or advisable to appoint a Select Committee to consider the introduction of flat rates, irrespective of distance, but he added that the effect of railway charges on the distribution of the country's economic activities would be borne in mind by the Government in its consideration of future transport policy. Probably the question arose, in part at least, out of the publicity which has been given to the flat rates which have been introduced for a large variety of Government traffics during the war, and which have resulted in considerable economies in clerical work, both to the railways and to the service departments. Some details of these charges, and their operation, were given in our issue of January 29. These flat rates are supervised by a special committee at the Ministry of War Transport to ensure that the most economic use is being made of the existing rail and road transport facilities in the national interest, and that traffic is not diverted undesirably from or to the railways as a result of these rates.

## Mr. W. H. Liley

The death of Mr. W. H. Liley, some details of whose career appear on page 92, is a matter for deep regret for a wide circle in the signalling world in England and India. When he became, in 1906, Assistant to the Signal & Interlocking Engineer, G.I.P.R., that railway was embarking on an extensive signalling programme, which had been under discussion for eleven years. It had installed some interlocking in 1879, at six stations between Lonavla and Poona; and about twenty-five more had been equipped since; only thirteen, however, had cabin interlocking. Over the approximately 600 miles of single track on the Bombay-Delhi route, only about twelve crossing stations had been interlocked. The work was not completed until 1912, as it was interrupted by changes of policy, but it was carried out very thoroughly. After Mr. Liley had succeeded Mr. I. W. Stokes in 1917, the standardisation of equipment was begun; and it was completed about the time he retired. The G.I.P.R. introduced under his guidance the most modern forms of signalling, including colour-light automatics, the first in India; a.c. track circuiting; and power signalling with electro-pneumatic point working. Mr. Liley's father also was a signal engineer, and was the first Resident Manager in Australia for McKenzie & Holland Limited.

## Staff Negotiating Machinery in the Bus Industry

The recent discussions which resulted in the granting of an increase in the war wage of workers in the passenger road transport industry, and the appointment of Mr. Eric D. Croft (whose portrait and biography appear on page 92) as Joint Secretary representing the employers' side of the negotiating machinery, call attention to this valuable method of industrial negotiation. It may be recalled that a Joint Industrial Council was formed in June, 1940, after discussions extending over many months between representatives of company bus operators and the appropriate trade unions, to deal with the privately-owned bus industry in England and Wales. The National Council for the Omnibus Industry thus constituted consists of 32 members drawn equally from the companies and the unions. The representatives of the companies include six nominated by the British Electric Traction Co. Ltd., six from the Tilling organisation, and four from other companies. In this connection, an *ad hoc* body called the Conference of Omnibus Companies was formed to appoint the employers' representatives. Its constitution was adopted in June, 1940, and confirmed on June 25, 1941. The objects of the conference are defined briefly as (a) to appoint representatives of the employers to be members of the National Council for the Omnibus Industry, and (b) to consider and advise on any matter concerning the industry referred to it by the representatives or a majority of them. The members of the conference consist of duly authorised representatives nominated by the bus companies in Great Britain owning 25 buses or more.

## Ten Years of London Transport

The completion of the first decade of operating existence of the London Passenger Transport Board, to which we made reference in our issue of July 2, was also marked by articles in the more important national dailies, notably one entitled "Ten Years of the L.P.T.B." which appeared in *The Times* of

June 30. The last-named article drew the reply from Mr. W. H. Birch, who pointed out that he was chairman of a company which, before the constitution of the London Passenger Transport Board, operated buses in London, and which still operates buses in the provinces. While expressly disclaiming any desire to begin a controversy upon the respective merits of private enterprise and public boards, he drew attention to the facts that (1) the L.P.T.B. is under Statutory obligation to pay  $5\frac{1}{2}$  per cent. to holders of "C" stock, and to seek such increases in fares as are necessary to enable it to discharge this obligation, and (2) although the minimum fare paid by the London passenger on buses, tubes, and trams has been increased by 50 per cent. (i.e. from 1d. to 1½d.), the L.P.T.B. has still been able to pay only 3 per cent. to holders of "C" stock, instead of the Statutory minimum of  $5\frac{1}{2}$  per cent. He then asked "Is it not significant that private enterprise, which, through a large number of separate concerns, operates public road passenger transport throughout the provinces, has been able to refrain from increasing its charges to the public, and has yet managed to remunerate its stockholders to a greater extent than 3 per cent.?"

### Bus versus Railway Operating Profits

Like Mr. Birch, we have no desire to give a new lease of life to discussion on which views are widely divergent, and, although we appreciate that methods of operation—and ultimate responsibility—are important factors in working efficiency, we feel compelled to point out that the peculiar hybrid nature of London Transport operations precludes direct financial comparison between it and either a railway or bus company. Were its activities confined to road transport (and its capital commitments similarly limited), it is beyond question that the financial results shown during the past decade would compare very unfavourably with those of any well-organised provincial bus company. This is not the case, however. London Transport has heavy tube railway capital obligations, which are widely believed to bring in a poor financial return. In other words, the buses are believed to carry the tubes. Statistical justification for this view is not forthcoming, by reason of the Statutory Pool of receipts between buses and tubes owned by allied companies which existed for nearly 20 years before the London Passenger Transport Board was formed.

### Overseas Railway Traffic

The Central Argentine Railway has published the gross receipts for the full 52 weeks of the financial year ended June 30 last, which total £6,808,170, an increase of £1,226,982 over those for the previous year. So far as can be gathered from the figures supplied by other British-owned Argentine railways, the gross receipts for the complete year may be estimated as:—£5,177,940 for the Buenos Ayres & Pacific, an increase of £561,180; £8,333,280 for the Buenos Ayres Great Southern, an increase of £722,940; £2,819,880 for the Buenos Ayres Western, an increase of £72,840; £660,390 for the Argentine North Eastern, an increase of £80,124; and £935,628 for the Entre Rios, an increase of £113,322. In the accompanying table the aggregate receipts are for the first ten days of July, 1943, and compare with figures for the first eleven days of July, 1942.

	No. of week	Weekly traffic	Inc. or decrease	Aggregate traffic	Inc. or decrease
Buenos Ayres & Pacific*	2nd	87,960	+ 1,080	111,300	- 35,820
Buenos Ayres Great Southern*	2nd	131,520	+ 11,340	197,940	+ 6,900
Buenos Ayres Western*	2nd	46,500	+ 3,120	64,800	- 8,040
Central Argentine*	2nd	110,607	+ 10,992	151,827	- 27,480
Canadian Pacific	27th	1,149,000	+ 183,600	28,395,700	+ 3,223,200

\* Pesos converted at 16½ to £

The United of Havana for the year ended June 30, 1943, secured gross earnings of £2,716,760, representing an increase of £1,007,731 in comparison with the previous year.

### Invasion and the Sicilian Railways

The successful invasion by British, Canadian, and American Forces of the Italian island of Sicily, beginning on July 10, has brought the Allied Armies into contact with main European railway system, for the Messina train ferry has enabled Continental main-line rolling stock to run through to Palermo and Syracuse since 1898. Much of the fruit traffic for Central and Northern Europe originates in Sicily and passes via the ferry. The island railways, single track and mainly of standard 4 ft. 8½ in. gauge, form the Palermo Department of the Italian State Railways. After a period of State management, most of the Italian railways were handed over to company working in 1885, and the Sicilian Railway was one of the three companies concerned. It was the least successful, and its system reverted to the State in 1905. The Messina area was severely shaken by

the memorable earthquake of 1908, which worsened the already poor condition of the lines, and subsequent volcanic action has affected various sections of railway. The narrow-gauge lines, both of the State system and of the two private railways (the Secondary and the Circumetnea), are of the peculiarly Italian gauge of 0.95 metres (3 ft. 1½ in.), of which our Armies have already had experience in Benghazi and Tripoli, as well as in Somaliland and Eritrea.

### Over the Alps into Italy

The large and important privately-owned Austrian Südbahn which served many parts of the old Austrian Empire, has long been split up among different countries and has been given the unrecognisable name of the Danube-Save-Adria Railway. One of the most interesting sections of the Südbahn previous to 1918 was the main route of 295 km. (173 miles) from Küfstein, the frontier station with Bavaria, through Wörgl and Innsbruck and over the Brenner Pass to Bozen, Trent, and Ala, which is 32 miles north of Verona and was then the frontier station with Italy. It was the oldest and easiest railway route over the Alps into Italy, and ordinary locomotives were used throughout. The railway rises from 1,665 ft. at Wörgl to 4,485 ft. at Brenner, the summit, and falls to 880 ft. at Bozen. The steepest gradient of 1 in 40 occurs five times on the 51 miles between Innsbruck and Brenner, and thence to Sterzing (14½ miles) it falls 1 in 44. In the summer of 1908 the writer of this note made a journey from Innsbruck to Trent in a compartment belonging to the Bavarian State Railways, which bore a notice that the coach was not to be used in Italy. As far as Bozen the train was crammed with German tourists who detained there for the branch to Meran. For the rest of the journey the traffic was comparatively light. The writer particularly noticed the very Austrian appearance of Bozen and the Italian character of Trent. Germany has now taken over the section of 110 km. (68½ miles) between Küfstein and Brenner, and Italy has got the 185 km. (115 miles) from Brenner to Franzensfeste and Ala. Some details of the present position of the Südbahn are given on page 96.

### Pickfords and Carter Paterson Merger

A further important step in the rationalisation of railway cartage arrangement is indicated by the brief announcement that the nominal capital of the Hay's Wharf Cartage Co. Ltd. has been increased by £871,008 (in £1 ordinary shares) beyond the registered capital of £1,350,000. It may be recalled that in 1933 the four main-line railway companies acquired practically the whole of the share capital of the Hay's Wharf Cartage Company (which in turn owns Pickfords Limited) and the whole of the capital of Carter Paterson & Co. Ltd. (£871,008). We understand that the additional capital is being created so that Carter Paterson may be made a subsidiary of the Hay's Wharf Cartage Company and thus enable Carter Patersons and Pickfords to be treated as one for operational purposes. The joint operation of the combined fleet of cartage vehicles of these two companies should enable appreciable savings to be effected in operating, maintenance, and incidental accountancy costs. It may be added that in March, 1942, the famous business of Thos. Cook & Son Ltd. was acquired by the Hay's Wharf Cartage Company.

### The Rochester (New York) Underground Railway

The status of the subway division of the Rochester Transit Corporation came recently under the consideration of Division 3 of the Interstate Commerce Commission. This line, of which a brief description and sketch map were published in our issue of November 6, 1942 (page 441), is built in the abandoned bed of the old Erie Canal. Construction was begun in 1922, and, after several delays, some of them political, the railway was opened on December 1, 1927. For most of its length it has three tracks, two of which are used for passenger service, and the third for local goods traffic and for shunting. The I.C.C. has found that this 9-mile electrically-worked line is "operated as a part of a general steam-railroad system of transportation," and is therefore not exempt from the provisions of the Railroad Retirement Act, the Railroad Unemployment Insurance Act, and the Carriers Taxing Act of 1937. The I.C.C. had no difficulty in reaching the conclusion, its report indicated, despite the fact that the Rochester Transit Corporation contended that the subway line was not a separate entity, but was part of its entire urban transit system, to which its goods operations, in which it acts as agent for the railways serving Rochester, were merely incidental. Citing certain precedents for its conclusion, the I.C.C. pointed out that the goods revenue of this underground railway, per mile of line in 1941, which was over \$7,000, exceeded similar



revenue of a majority of electric railways as to which it had reached a similar decision.

### Specifications in Wartime

In wartime it is a matter for argument whether specifications for railway materials, and the rigidity of tests and inspection, should be relaxed, and if so, to what extent consistent with safety and endurance. In present conditions manufacturers labour under considerable difficulties. Producers of steel, for example, can no longer count on the use of carefully selected and graded scrap, and various undesirable elements are likely to find their way into the steel, in minute quantities, no doubt, but sufficient to cause brittleness and at times to jeopardise conformity to specified tests. The much-boosted iron railings salvage campaign, for example, produced the iron, but with it accumulated coatings of paint that caused no small anxiety by reason of the paint constituents thus introduced into iron and steel. From the railway point of view, the present is supremely a time when materials of the best quality are needed, so that unduly early replacement, and the labour that it entails, may be avoided. As to dimensional accuracy, it is as easy to make a job right as wrong, and there seems little reason why dimensional requirements should be relaxed, except in cases in which finer limits of accuracy are laid down than the job really requires. What is needed is an inspectorate with a thorough knowledge of the use to which all material is to be put, and with a certain amount of discretion as to interpretation of specifications; above all, there should be a spirit of give-and-take as between manufacturer and user, so that each realises the wartime difficulties of the other, and is prepared to compromise in so far as compromise is reasonable and safe.

### Safety in Diesel Operation

Apart from the wages claims being made by U.S. diesel enginemen, recorded in our last week's issue, demands are also being made by the labour unions that on the multiple-unit diesel locomotives additional firemen, or helpers, shall be carried, so that, in the interests of safety, one of these helpers shall always be at the front end, with the driver, while the other may be attending to the maintenance of the motive power. It was pointed out by a safety expert, however, that statistics for the years 1936 and 1941, when over a billion locomotive-miles were run over the Eastern Railroads of the U.S.A. with all types of motive power, showed that of 35 fatalities to enginemen, not one occurred to the driver of an electric or a diesel-electric locomotive; and while locomotives of the latter types were responsible for 8.4 per cent. of the total mileage, only 3.4 per cent. of the accidents involving injuries to enginemen were on other than steam locomotives. One witness gave it as his opinion that the more a driver relied for safe operation on the assistance of a fireman, rather than on his own good judgment, the less safe that operation was likely to be. As so large a proportion of diesel power on American railways is now in twin or triple-units, it is calculated that insistence on this demand for additional enginemen would nearly double the personnel so engaged. Above all, these wage demands, if conceded in full, would slow down, and very likely arrest altogether, on economic grounds, the development of diesel power on American railways, where it has been making such promising strides in recent years. It is possible, indeed, that the heavy recent increases in orders for steam locomotives in the United States may be due in part to this diesel uncertainty.

### Valve Gears

Much of the present-day interest in the steam locomotive centres in valves and valve gears, the probable reason being that it is in connection with steam distribution rather than steam generation and application that openings for future technical advancement seem most likely. But valve gears have the added attraction of being a little mysterious; not a few practising locomotive engineers admit that they know little about their design but entrust this complex study to the particular genius of some specialist on their staff. Others go to the length of having a large model made with rods, eccentrics, and links of variable dimensions so that design can be made a matter of actual trial and error. One engineer of our acquaintance expressed wonder that a locomotive manufacturing concern known to him should be successful in evolving suitably proportioned valve gears considering that the designers there had never had such a model. The fact is, of course, that a capable draughtsman with an aptitude for kinematics, can "try out" by drawing-board methods alone any proposed valve gear in a matter of an hour or two. After gaining experience in this way he becomes expert at so proportioning the parts as to give a balanced distribution.

### Antofagasta (Chili) & Bolivia Railway Co. Ltd.

THIS company has administrative offices at Antofagasta covering the lines in Chile, and at La Paz for the Bolivian lines. A system of waterworks is also part of its undertaking. Among the railways operated are the Aguas Blancas and the Bolivia. As shown in the recent report, gross receipts of the whole undertaking in the year 1942 amounted to £1,192,504, an increase of £181,611 compared with the previous year. Expenditure was £1,030,080, against £877,791, and the surplus on working was £162,424, an improvement of £29,322. From the Andes Trust the company received a dividend of £37,500 and £62,836 from its holding in the bonds of the Bolivia Railway Company. After allowing for the rental payment of 40 per cent. of the gross receipts, the operation of the Bolivia company's lines resulted in a loss of £75,905, and a sum of £8,842 has been charged in respect of the Antofagasta Company's lease of the Aguas Blancas Railway. The accompanying table compares the financial position of the past two years:—

	1941	1942
	£	£
Railway gross receipts ... ..	963,773	1,146,996
Railway working expenses ... ..	832,656	956,812
Railway net receipts ... ..	131,117	190,184
Total income ... ..	465,834	545,225
Debiture interest, rentals, etc. ...	218,799	273,498
Carried forward ... ..	247,035	271,727

There was a loss of £27,760 on the operation of the waterworks, principally due to special maintenance work. The number of passengers carried was 572,754, an increase of 79,620, and the passenger receipts of £74,178 showed an improvement of £20,587. Luggage and parcels receipts advanced by £6,183. Public goods traffic totalled 1,197,822 tons, an increase of 39,457 tons, and the goods receipts of £966,529 were £150,141 higher than in 1941. Up traffics generally were well maintained, and general merchandise showed an appreciable increase. Receipts were favourably affected by general increases in the tariffs of the Chilean and Bolivian sections which came into force on October 12 and 26 last respectively. Working expenses of the whole undertaking were about 17 per cent. more than for 1941. The increase is explained in part by the greater volume of traffic handled, and other contributory causes were the advance of nearly £100,000 in the salaries and wages bill, and of some £60,000 in the fuel bill.

### Transport and Its Track

WE have discussed in recent editorial articles two major matters affecting post-war arrangements.\* We propose, now, to discuss a third which we may describe as the problem of the road-way. In the past this subject has been highly controversial, and it is probable that its essentials have been so confused by argument and counter-argument that few people, in the transport industry or outside it, would care to pronounce on it with confidence one way or the other. In the first place we shall endeavour to set down the facts that are relevant, using as far as possible figures that are accepted by interested parties.

The railways own their own track or road-way and have a monopoly of its use. They operate on this track passenger and freight services; and they are the only form of public transport that owns its own track and operates both passenger and freight. The highways are owned by the public, and, generally, public road passenger and freight services are operated by separate undertakings; private transport also uses the highways, as also does the rest of the public. Canals are privately-owned but, generally, the owners do not operate on them, and this is done by carriers or traders. Coastwise shipping and air transport use a road-way provided for them by nature, but, of course, their terminals—docks and harbours, and airports—are provided by man.

It is obvious that the economies of a particular form of public transport are governed largely by whether a special form of road-way is needed or not. The bulk of the capital required for operating a railway, road transport, or canal service is in its track. Of the total capital expenditure of £1,200 million on the railways, for instance, about £700 million is invested in the track. The highways are estimated to have cost £2,000,000,000. It is this heavy initial expenditure in the special road-way which makes public transport different from other forms of enterprise.

\* "The Future of Transport," *The Railway Gazette*, June 18, and "The Problem of the Peaks," *The Railway Gazette*, July 9

An ordinary company engaged in buying commodities and selling them, after conversion into retail goods, may turn over its capital twice, four, or six times a year. But a railway will do this only once in several years; in Great Britain in 1938 it was at the rate of once in six years, in 1928, once in five years, and in 1913 once in eight years. The preponderance of railway capital in ratio to annual receipts is mainly due to heavy initial outlay on the road-way. But having spent that money the economy in operation is very great; the railway is the cheapest form of traction ever invented, largely because train loads can be hauled by only a few men at high speeds with safety. Before the war comparative costs were worked out of conveying traffic by rail, road, and water between London and Birmingham, and the result was as follows:—

#### CONVEYANCE COSTS (EXCLUDING TERMINALS)

	Railway Locomotive drawing 57 10-ton wagons	Road 15-ton lorry	Canal 40-ton motor barge drawing 40-ton barge
Pay load ... ..	522 tons	15 tons	80 tons
Time of journey ... ..	3 days	1 day	5 days
Cost per ton mile:—			
Assuming 100 per cent. pay load ... ..	0.16d.	0.80d.	0.36d.
Assuming 50 per cent. pay load ... ..	0.32d.	1.52d.	0.62d.

The costs were on the basis of full or half-full loads for each of the units and on the assumption that this basis continues throughout a year. The economy of rail transport in these circumstances is marked; it is due to the use of mechanical power on a specialised roadway and concentration of load.

To return to the road-way. For the use of their track the railways pay about £26 million a year in maintenance and require to pay £28 million in interest on the capital (assuming 4 per cent. on £700 million). The railway companies therefore require to pay annually £54 million, or 34 per cent. of their gross receipts, to maintain and service the capital for their track alone. In return they have the sole user of the track with the benefit this gives in safety and economical operation.

The highways are provided and maintained by the public but to their maintenance other users contribute something, although these contributions are now merged in the national finance. In 1938 the amount contributed by motor-vehicle users alone in vehicle and fuel duties was about £80 million and of this about £20 million was paid by public road-transport operators. The annual cost of the roads was £65 million plus 4 per cent. on the £2,000,000,000 invested in the highways or £80 million—total £145 million. Although the highways are used by others besides public transport operators, the fact remains that the latter compete commercially with the railways and based on the evidence which is available they are required to contribute only about 11.12 per cent. of their gross receipts to maintain and service the capital expended on the highways, compared with 34 per cent. by the railways.

It is this difference between rail and public road transport which makes it impossible—mainly as to freight transport—for the two systems to compete on equal terms. The question of charges (particularly freight) is directly related, and although a solution of the road-way problem would go far to bring about equality of conditions between rail and road, it would be necessary to secure relationship in charges before a complete solution could be found. An idea of the effect of road competition can be seen from the fact that between 1928 and 1938 the number of passenger journeys by rail fell by only 2 per cent. and there was a substantial increase in passenger miles; on the other hand, merchandise tonnage in classes other than 1 to 6 fell by 23 per cent., partly due to the condition of the heavy industries but mainly to diversion to road transport because of the unrelated charges structures arising largely from the dissimilarity in road-way arrangements.

If a public transport undertaking has its road-way provided for it by nature, this is a legitimate advantage which it possesses over other forms that do not. For example, a coastwise shipping service with no track costs except light dues has a net receipt (before interest on capital) of about 15 per cent. of its gross receipts; the comparable figure for the railways is 16 per cent. At this point there is little in it, but interest on capital, mainly track, weights the advantage heavily in favour of the shipping service. The reason is, of course, that the coastwise service requires no track expenditure. If a no-track system of public transport could meet all public requirements for transport at a lower economic cost than other forms requiring a special road-way, it would be the most suitable form of transport and would rightly supersede all others. If, on the other hand, such a form of transport could not meet all public requirements, then its natural advantage should not be permitted merely to "cream" the traffic of other forms and throw them into jeopardy. This may be the situation as to air transport after the war, and the problem is how to secure the advantage of air

transport and give it scope for development and at the same time eliminate wasteful competition.

We cannot attempt here to carry our analysis further; but we submit that once again, as with the peak problem, the conclusion is clear that it is necessary for the post-war period to consider all transport as one problem and to plan it accordingly. In this planning the maintenance of efficiency is vital, and we hope to discuss this all-important aspect in another article.

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### Steam from Electricity

ALL engineers are familiar with the production of electricity by steam power and they bear in mind the fact that about 10 lb. of high-temperature high-pressure steam are required to produce a Board of Trade unit of electricity in a large up-to-date plant. What will not be so generally known is the cost in electrical energy of power from electrically generated steam. In normal times this figure would be of little interest, because power would never be developed in so extravagant a manner; war-time stringencies, however, have compelled the Swiss to "fire" some of their steam locomotives electrically, as described on p. 85 of this issue; therefore it is interesting to speculate on the probable consumption of electricity for a given result.

It needs about 1,150 B.Th.U. of heat to produce a pound of saturated steam at the moderate pressure normally used in a shunting engine. A unit of electricity is equivalent to 3,350 B.Th.U.; consequently its consumption in a boiler would produce 3,350/1,150 or just short of 3 lb. of steam. The comparison then is between the 10 lb. of high-grade steam initially expended and not quite 3 lb. of low-grade steam which is the yield. The fact that in Switzerland electricity is generated by water power does not put a better complexion on the matter. A unit of electricity consumed in an efficient electric motor yields well over one horsepower for one hour.

A first-rate locomotive would need 20 to 25 lb. of steam, equivalent to about 8 electricity units, for the same result. A shunting engine would require three or four times this figure—say 24 to 30 electricity units. It is rather surprising to find that the Swiss railways have persisted in the use of steam shunters so long as to be faced now with the necessity of countenancing this wasteful utilisation of electricity. It may be a Swiss experience that single-phase electric locomotives have never proved satisfactory in shunting service. If so it is an interesting fact that should be borne in mind when comparing the relative merits of the a.c. and d.c. methods of railway electrification.

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### How the G.W.R. is Carrying On

"DURING the (1914-19) war the railways bore the brunt of the transport burden and successfully responded to the constant calls made upon them." So reported the Royal Commission on Transport in 1930, but during the present war the work of the British railways has been rendered infinitely more difficult by reason of blackout conditions, hostile air action, and many other considerations. Nevertheless, they have accomplished, and are accomplishing, an even greater task with outstanding smoothness and success. In our issue of July 2 we were able to reproduce certain statistics published in the June issue of the L.M.S.R. wartime news letter "Carry On," which gave some slight indication of the immensity of the work which that company is performing in connection with the national war effort.

The other main-line companies are making an equally impressive contribution to the successful prosecution of the war, although for a variety of reasons the magnitude of the work accomplished by the individual companies varies in certain directions.

For example, the G.W.R. statistics indicate that, for the year 1942 the loaded wagon miles run, the measure of the freight work done, totalled 725 millions, an increase of 165 millions or 30 per cent. compared with 1938. The average wagon load for merchandise traffic at the end of the year was 4.37 tons, an increase of no less than 1.29 tons compared with 1938. For minerals and merchandise in classes 1 to 6 the average wagon load was 9.87 tons, an increase of 0.37 tons over 1938 and for coal, coke and patent fuel was 11.73 tons, an increase of 0.44 tons over 1938.

The average number of loaded wagons per train also showed a substantial increase to 27.07, as compared with 22.93 pre-war. Every week about 147,000 loaded wagons were forwarded from G.W.R. stations and the company's freight engine miles run totalled 56,195,448 miles, an increase of 1,699,491 miles, of



3.12 per cent., compared with 1941, and an increase of 8,028,177 miles or 16.67 per cent. compared with 1938. During the 52 weeks ended December 26 the freight train miles run totalled 26,769,517, an increase of 758,258 or 2.92 per cent. compared with 1941, and 2,065,932 or 8.36 per cent. compared with pre-war.

On the passenger train side the originating passenger journeys totalled 169 millions, this representing the substantial increase of 24 million journeys over 1941 and no less than 41 million journeys or 32 per cent. over 1938. A very large proportion of these journeys was made by Service personnel but the reason for crowded trains will be appreciated when it is realised that loaded coaching train mileage during the same period was 31,884,717, a reduction of about 375,000 miles or 1.16 per cent. compared with 1941, and a reduction of no less than 9,600,000 miles or over 23 per cent. compared with pre-war.

It is also of considerable interest from a fuel economy point of view that in a recent four-weekly period the coal consumption per engine mile was 50.95 lb. as compared with 51.66 lb. during the corresponding period of last year. Oil consumption during 1942 was at the rate of 7.22 pints per 100 miles, a reduction of 0.02 pints as compared with 1941.

On the staff side it may be mentioned that about 56,000 men and women are employed in traffic operations, of which about 22,000 represent footplate, locomotive shed, and carriage and wagon staff. So far as the company's staff serving with H.M. Forces is concerned, up to the present the staff comforts fund has expended £22,000 on the dispatch of over 60,000 parcels to those employees including 214 who are prisoners of war, and many appreciative letters have been received from the staff concerned.

### Electrical Terminology

THE publication of a volume concerned with the American equivalent of our British Standards Specifications 205—Glossary of Terms Used in Electrical Engineering\*—provides an obvious opportunity for comparison between British and American practice in technical terminology, particularly as the American "Definitions" include a considerable section concerned with land transport. There is very little use in bawling the loss of another opportunity to achieve standardisation in the use of electrical terms for all English-speaking peoples, but it is satisfactory to know that close mutual study is made of the definitions published on both sides of the Atlantic. The American standards, which are issued by the American Institute of Electrical Engineers, acknowledge the assistance obtained from the British sources, and from the experience of the Secretariat on Nomenclature of the International Electrotechnical Commission. There was, in point of fact, a good prospect that the I.E.C. would have produced a basic vocabulary by this time but for the war, but, in the circumstances, and in view of the inevitable delay always associated with efforts towards international agreement, both the British Standards Institution and the American I.E.E. were undoubtedly wise in proceeding with their individual compilations. An up-to-date glossary is being published by the B.S.I. in ten sections, plus an index, and a separate revision is to be issued of terms relating to telecommunication (B.S. 204). The American "Definitions" include telecommunication, which subject, however, is known as electrocommunication, and is divided into nineteen groups.

In general, the treatment of the American "Definitions" is more comprehensive, and they are more numerous, than those in the corresponding Glossary of the British Standards Institution. Indeed, in some items the style of the former approximates to that applicable to a concise textbook. There are even included some diagrams and a fair number of mathematical expressions, particularly in connection with fundamental and derived units. The total entries are much more numerous, but nevertheless the "Definitions" are not considered to have been completed; for instance, under electrocommunication there is a Group No. 65, comprising 12 sections, the titles only of which are given, and in a good many other cases cross-references are provided between groups where certain terms are listed and are thus indicated to have the same meanings as where defined in another group. In the group on transport we find nothing liable to cause serious confusion to a British reader but, as in other groups, there are many terms included which do not occur in either the B.S. Glossary or the I.E.C. Vocabulary. A "Maximum Equipment Line," for instance, is "the contour which embraces cross-sections of all rail stock under all normal operating conditions," and a "Sequence Switch" is "a remotely-controlled power-operated switching device, used as a

secondary master controller." Group 41 is concerned with transport by air—a subject not dealt with by the B.S.I. nor by the I.E.C. Group 42 on transportation, land, is that with which we are concerned more particularly, and in general the terms are similar to those with which we are familiar. Here and there slightly different expressions are used. We do not, for instance, speak of a "Wood Stick Section Break," which is defined as "a section insulator wherein the sections are insulated from each other by a wooden section over which the current collector passes smoothly from one section to the other." The group of course includes road as well as railway vehicles. It particularises different types of electric locomotives and railcars at greater length than the Glossary or the Vocabulary, but in such a way that no particular difficulty is raised, because the terms are fairly self-explanatory.

Lighting in land transport is not covered by the Glossary, nor, except for two definitions relating to axle-driven generators, by the Vocabulary, but it has a fairly lengthy section in the American Group 42. As regards braking, the classification of electrical methods is generally similar to that of the other two authorities, with the addition of a definition of the electro-pneumatic brake. There is a short section on traction equipment, relating mainly to the suspension of motors, and this is followed by three longer sections on signals and interlocking, automatic train control, and car retarders. These three subjects are treated very adequately, but they are difficult to compare with the equivalent section in the Vocabulary, because they relate to different practice in signalling. Moreover, although the subjects are not considered in the Glossary (B.S. 205), they are dealt with in a separate publication by the B.S.I. (Glossary of Terms Used in Railway Signalling, B.S. 719), which goes into even greater detail than the American "Definitions," except as regards automatic train control and car retarders. Finally, Group 42 is concluded by a miscellaneous section, relating mostly to train equipment. We notice that American usage employs the term "power" where we should use "voltage-amperes." This leads to terms such as "fictitious power" and even "zero sequence reactive power."

### L.M.S.R. "City of London" Engine

THE Lord Mayor of London, Sir Samuel G. Joseph, on Tuesday last, named L.M.S.R. engine No. 6245 *City of London*. It is one of the latest engines of the "Coronation" class. The decorative blue and silver or lake and gold finish of the earlier engines has, however, given way to wartime austerity all-black. The *City of London* is the first engine of the class to be so painted. She and her sisters are the largest and fastest L.M.S.R. passenger engines. The first was built in 1937 to meet the need for a high-speed service between London and Glasgow, and they hauled the famous pre-war *Coronation Scot* express over the 401.4 mile route in 6½ hours at an average speed of 61.7 m.p.h. A maximum speed of 90 m.p.h. was observed in the interest of passengers' comfort, although the locomotive was capable of greater effort and on one occasion during a test run a speed of 114 m.p.h. was attained. The specially built 9-coach trains of those far-off days weighed under 300 tons.

Now the engines are taking a major part in the National war effort, hauling special troop trains and other essential passenger trains of up to 18 vehicles weighing 540 tons tare and they have even been pressed into service to move urgent war freights. All the important express trains between London and Scotland are headed by "Coronation" class engines, and it is on this service that they establish several world record long distance non-stop runs including a daily run of 299½ miles from Carlisle to London with the Royal Scot express. This is a remarkable performance after almost four years of war, and a tribute to the efficiency of L.M.S.R. mechanical equipment and to the skill of the engineering and operational staffs.

The prototype of this class, No. 6220 *Coronation*, toured America with its train in 1939 and afterwards was exhibited at the New York World Fair. During its visit the train travelled 3,121 miles over American railways, under its own steam, and was inspected by 3,187,000 people. The train was stranded in the U.S.A. on the outbreak of war, but the locomotive was brought home in February, 1942, to play its part in the war effort. Recently, the eight coaches forming the train have been given by the L.M.S.R. to the U.S.A. Government for the use of the War Department. The engine weighs in full working order 164 tons 9 cwt. and has an overall length of 74 ft. The tender carries 10 tons of coal, sufficient for a through run from London to Glasgow, and 4,000 gallons of water, replenished from time to time from the water troughs. The crew in charge of the engine for the ceremony were Driver W. T. Freestone, who was awarded the B.E.M. for service during the Blitz, and Fireman D. H. Saville, both of Camden L.M.S.R. Motive Power Depot.

\* See page 85

## LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

## Sailways

Essex House, W.C.2. July 12

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—With reference to the notes in your issue of July 9 on sail power, the use of wind as a prime mover goes back to the very early days of railways. Sir Humphrey Mackworth (1657-1727) used it on the railway he made in 1695 at Neath, with the unfortunate result of provoking in about 1700 the following effusion from Thomas Yalden, "who"—the Cambridge History of English Literature unkindly says—"lingers, mummy fashion, in the collections of British poets":—

"Thy fam'd inventions, Mackworth, must adorn  
The miner's art and make the best return  
Thy speedy sails, and useful engines, show  
A genius richer than the mines below."

The winds thy slaves their useful succour join,  
Convey thy ore, and labour at thy mine."

Henry R. Palmer, the first mono-rail inventor, advocated the use of sails on railways in the *Journal of the Franklin Institute* in 1828, and an illustration (reproduced by Mr. Dendy Marshall in his book) of sail power on Palmer's mono-railway was published in Hebert's "Practical Treatise on Rail Roads" (1837).

In his "Description of a Railway on a New Principle" (First Edition, 1823) Palmer deals only with horse power, in the simplest sense of the word, and not with any possible use of sails, and there is no evidence that the two actual examples of this anticipation of the Lartigue curiosity at Ballybunion were ever sailways. These two Palmer-lines, both in existence before 1826, were a short section in the Royal Victualling Yard, Deptford, and a  $\frac{3}{4}$  mile length from the lime and brick kilns on the highway at Cheshunt (Herts) to the Lea Canal. In regard to the latter line the *Mechanics Magazine* of August 6, 1825, said: "One carriage has been constructed for the purpose of trying the application of the plan to the conveyance of passengers."

To return, however, to sail power, from this digression into monorailia, Thomas Wood in "Cobbers" tells of a mast and

sail-bearing trolley on the Queensland Government Railway somewhere between 1930 and 1932, and Lecount in his "Practical Treatise on Railways," 1839 (at page 21), records the use of sails for purposes of retardation instead of propulsion as follows:—"On some of the American railways there are places so steep that sails were made use of in descending them to check the velocity." (See "A History of British Railways down to the year 1830," by C. F. Dendy Marshall—1938—pages 71, 81, 84, 167, 171, et seq., and 240).

Yours faithfully,

KENNETH BROWN

## Tractive Effort and Wheel Diameter

Westminster, S.W.1. June 30

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The most interesting and valuable article by Dr. Tuplin in your issue dated June 25 advances carefully considered arguments in favour of the employment of the largest practicable driving wheels for a given duty, and thereby gives an explanation of what many railwaymen have felt instinctively, though they have in general remained inarticulate on the subject.

Have any comparative trials ever been carried out with a view to investigating optimum wheel diameter for a specified job? If not, there are today numbers of locomotives of types which are similar in every relevant detail except wheel diameter. It would be of interest to have comparative performance data of large-wheeled *versus* small-wheeled 0-6-0s on the Great Northern section of the L.N.E.R., both of Mr. Ivatt's and Sir Nigel Gresley's designs, also of the latter's "J38" and "J39" goods engines. Comparative results could also be obtained, with the co-operation of the railway companies, from the three principal classes of two-cylinder 4-6-0s on the G.W.R., and from the various types of Urie 4-6-0s on the Southern Railway.

Dr. Tuplin mentioned the use of 7 ft. 3 in. wheels on the L. & Y.R. Aspinall Atlantics, but did not refer to the numerous and successful 4-4-0s on that line with wheels of the same diameter. The "Claud Hamilton" 4-4-0s of the Great Eastern Railway, perhaps one of the finest of all 4-4-0 designs, has achieved great success with 7-ft. driving wheels.

Yours faithfully,

"OMEGA"

## Publications Received

**Locomotives of the Smaller Welsh Railways and of the Midland & South Western Junction Railway.** Compiled by M. C. V. Allchin and obtainable from him at "Glenvale," Porchester Road, Fareham, Hants. 8½ in. x 5½ in., 12 pp., paper cover. Price 1s. 7d. post free.—This little book is the second in the new series of locomotive registers by Mr. Allchin, replacing an earlier edition of several years ago. The information given covers all locomotives in service immediately before the amalgamation. Details given are the wheel arrangement, the builder and building date, the works number and the G.W.R. running number. The first of this series was "Locomotives of the Cambrian, Barry, and Rhymney Railways," obtainable at the same price.

**The South American Handbook, 1943.** Edited by Howell Davies. London: Trade & Travel Publications Limited, 14, Leadenhall Street, E.C.3. 6½ in. x 4½ in. 722 pp. Price 3s. 6d. net; 4s. post free.—It is a tribute to the efficacies of the Allied navies and merchant fleets that commercial relationships with South America are still sufficiently normal to justify the production of this, the twentieth annual edition of "The South American Handbook," and the fourth since the outbreak of the present war. The difficulties of the publishers have increased in ways which are acutely familiar to other publishers, but are not always recognised by members of the general public. There are difficulties of paper supply, of metal for illustration blocks, of labour, and of securing up-to-date information with delayed (or lost)

mails. Nevertheless, the publishers have succeeded in producing a reference volume well worthy of the high standard which readers have been led to expect during the past two decades. Even a cursory reading shows that, almost without exception, trade figures and transport details have been brought one year up to date with the same consistency as if wartime difficulties did not exist. We venture to congratulate the editor and publishers on a noteworthy achievement, and have no hesitation in recommending this volume as an essential work of reference to all having business relationships with the great republics of South America.

**Glossary of Terms Used in Electrical Engineering.** London: British Standards Institution, 28, Victoria Street, S.W.1. 8½ in. x 5½ in. Price 2s. net each part.—Parts 5 and 6 of this work have now been issued. Part 5 contains section 6 of the glossary, dealing with Electro-chemistry, and also section 7 entitled "Traction." The latter, though a comparatively brief section comprising but seven pages, is of primary interest to our readers; the terms cover both railways and road transport. Part 6 consists of section 8 of the Glossary, dealing with lighting, heating, and domestic appliances. There are still two more parts to appear, of which the last will comprise an alphabetical index to all the sections.

**Sweden: A Wartime Survey.**—This is a 250-page illustrated book issued by the Press Bureau of the Royal Ministry for Foreign Affairs, with the object of presenting to the English-speaking world an outline of Swedish life today. The book contains 24 articles, which with the assistance of 52 illustrations, gives the reader some idea

of the action Sweden has taken to meet the military, social, and economic problems with which she has been faced since the outbreak of war. There are articles on the Swedish Constitution, Defence, Foreign Trade, Food Supply in Wartime, Fuel Supply, Literature and the Arts, and Shipping and Transport; the last explains briefly but clearly how Sweden is handling an extremely difficult situation.

**Dial Gauges.**—A catalogue sheet, recently issued by A. C. Wickman Limited, illustrates and describes universal dial gauges intended for tool room and machine shop inspection. In one type the dial has a diameter of 1 in., and the graduations are black on a white background. Reversible movement is operated by a small switch lever which is mounted on the side of the body. The bezel is rotatable for setting to zero and is graduated in 0.0001 in. and also in 0.002 mm. The other type has an exceptionally light movement of between 32 and 46 gm. pressure. The bearings are mounted on hard steel and the pivots are lap finish. The dial is graduated in 0.00025 in., and 0.0005 in. With each type a universal steel clamp on a sliding base is provided for attaching to surface gauges, height gauges, and tool posts. The finish of both gauges is crystalline black and each gauge is provided with a case.

**Crompton Lamps and Lighting Units, 1943.**—A folding leaflet bearing this title contains illustrations and prices of filament lamps and electric discharge lamps; also of chokes, condensers, and reflectors for the latter type. Motorcar type filament lamps and fluorescent discharge lamps are included in the list. A table is given to enable the additional purchase tax to be computed.



## The Scrap Heap

Some 3,000 lb. of pins and fasteners have been taken from old L.M.S.R. correspondence files and brought to fresh use.

### AN UNUSUAL WATER PIPE OBSTRUCTION

The water tank at Polmont Locomotive Depot receives its supply from a nearby canal; the inlet pipe is protected by gratings at the point of admission, and equipped with the necessary valve for regulating the flow. One day recently, the water, for no apparent reason, ceased to flow through the inlet pipe, although the canal gratings were quite clear and the valve fully open. The ball valve was therefore taken out, when it was found that the inlet space was completely blocked by a large eel, 2 ft. 9 in. in length.

A scheme by which retail traders whose normal work has decreased due to the war are able to do other vital work has been evolved by the Ministry of Labour in Birmingham. A serious shortage of staff at the Great Western Railway goods stations coincided with decreased hours of work among the butchers. At the suggestion of the Ministry of Labour, the Retail Butchers' Association asked its members if they would take on spare-time jobs at the stations. Now the butchers work from a half-day to two days weekly. The L.M.S.R. applied later for similar help and the experiment has spread to other districts of the Black Country.—From "Parade" (Publication for Service personnel in the Middle East.)

Although electric tramcar post offices have been used in various parts of the U.S.A. for many years, horse cars and cable cars, as well, have rendered this service in Chicago. The first tramway post office made its debut there on May 25, 1895, and was cable-operated. It was painted white, in the best traditions of the service. Occasionally the old cable group cars were not available, and horse-drawn equipment, repainted and overhauled to conform to



Changing the guard

U.S.A. Post Office requirements, was used. Between 1899 and 1907, electric-powered S.R.P.O.s (Street Railway Post Offices) were introduced, and, at the height of their existence, were operated on seven routes, the longest of which was Wentworth Avenue, covering just over 8 miles. However, the success of motor vans as mail carriers caused their abandonment, as they had a way of bunching up traffic while making their pickups. Accordingly, on November 18, 1915, tramcar mail was officially discontinued in Chicago.

### TUNISIAN THROWBACK

Seventy years ago, in March, 1873, it is interesting to recall, railways made their debut in Tunisia, and among those financially interested in the Tunis Railway, when in its infancy, was John Chester Craven, who had retired three years earlier from the position of loco-

otive superintendent of the London, Brighton & South Coast Railway. He had on many occasions acted in the capacity of consultant on locomotive matters to a number of small railways, and at the period mentioned the Jersey Railway, as well as the Tunis Railway, claimed his attention; and thereby hangs a tale.

An engine was required by a certain date for the Tunis line, and another one, not so urgently, for the Jersey railway. Unfortunately, as luck would have it, the Jersey engine was ready first, and Mr. Craven therefore arranged for it to be shipped to Tunis, intending to send the other engine to Jersey in due course. The Tunis Railway duly got its locomotive, but the Jersey company firmly refused to accept a changeling, so Mr. Craven found himself in possession of an engine which had nowhere to go.

However, he managed to prevail on his former directors of the L.B. & S.C.R. to purchase the engine, which was delivered by the maker, Sharp, Stewart & Co. Ltd., and set to work on three-coach trains on the West London Extension shuttle service. Subsequent increase in traffic proved too much for it, however; it was replaced by a Stroudley "Terrier" and sent to Newhaven harbour to work ballast trains, being then named *Bishopstone*, later it was stationed at Havant for working the South Hayling line. In accordance with the "Brighton" practice of the period, a renaming was called for by this move, and the engine became *Fratton*.

### TAILPIECE

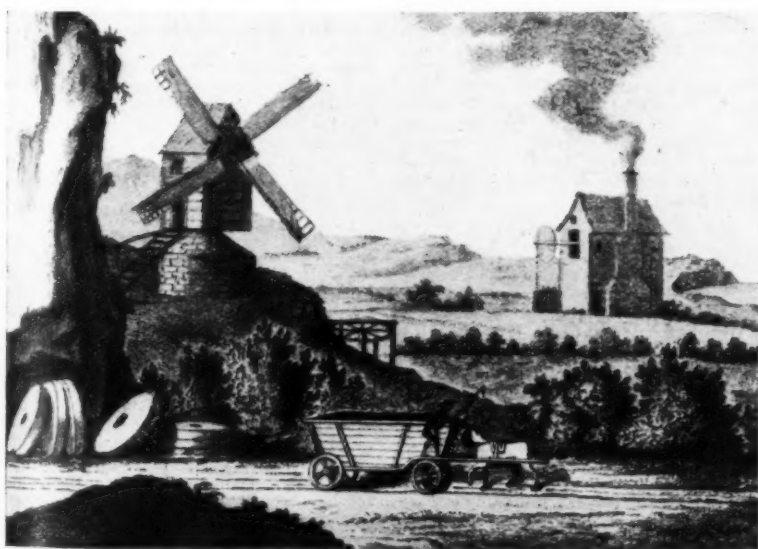
(The L.C.C. scheme for post-war London includes reorganisation of traffic)

A scheme for making London new  
Can scarcely fail to go askew  
Unless a method is devised  
To keep the traffic organised.

It will abound in prospects fair,  
In harmonies of park and square,  
This London beautiful to see  
Envisaged by the L.C.C.

The London of our post-war day  
Must plan alike for work and play,  
With traffic in an ordered roll  
To give cohesion to the whole.

E. C.



Propelling a rail vehicle by horse in County Durham. This unusual view, showing a railway coal wagon with shafts, and the horse in rear, is reproduced from the illustrated title to the map of the County Palatine of Durham, surveyed by Captain Armstrong and engraved by Thomas Jefferys. 1768



## OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

### UNITED STATES

#### Duplex-Roomette Sleepers

Shortly before the war the Pullman Company put into service a new type of sleeper known as the Duplex-Roomette car. In this development of the Roomette car, by dovetailing the single-room compartments together, in an ingenious fashion the designers increased the number of berths in each car, without interfering with the privacy of the occupants; and it was possible to reduce the sleeping-car supplements somewhat in proportion. The new cars have been running experimentally in particular between Chicago and Washington, and with such success that not only have they been booked to capacity, but in their first year roughly have trebled the average annual earnings per car of all other types of vehicle in the Pullman service.

There is little doubt that there will be extensive building of Duplex-Roomette cars after the war, and of the three-tier coach-sleepers, which also have been operating experimentally, and for the first time have given the American coach, or third class, passenger the benefit of full sleeping accommodation. In this connection it may be mentioned that the Government's Defense Plant Corporation has placed with the Pullman-Standard Car Manufacturing Company a contract for 1,200 three-tier sleeping cars for the use of the American Forces, and that the Pullman Company has agreed with the American railways, on the application of the Association of American Railroads, to enter into a contract for operating these cars.

#### Collisions in A.T.C. Territory

A report has been issued by the Interstate Commerce Commission on a rear-end collision which occurred on December 26, 1942, at Dixon, Illinois, Chicago & North Western Railway, on a main line equipped with continuous inductive train control. Train No. 87, the San Francisco Challenger, made up to 16 vehicles, had just left Dixon in a westbound direction when it was overtaken and run into by westbound express mail No. 5, with the result that two employees were killed and thirty-five persons were injured. The type of a.t.c. in use includes tapered speed control, with two audible indicators and a visual indicator in the cab of each locomotive; and it seems clear that on this occasion the audible indicators failed to function. Train No. 5 had made the customary speed reduction to 50 m.p.h. over the 32½-ch. curve through Dixon, and was recovering speed when the tail-lights of No. 87 were sighted 600 ft. ahead; speed had been reduced to about 40 m.p.h. by an emergency brake-application when the collision occurred, at 10 min. before midnight.

#### I.C.C. Report on Dixon Accident

Exhaustive experiments were made after the Dixon accident with both the locomotive and lineside equipment, but without the reason for the failure of the apparatus on the engine hauling train No. 5 (No. 2909), which had functioned normally at De Kalb, 40 miles east of Dixon, being discovered. At a maximum speed of 83 m.p.h., voltages induced in the receiver coils by the rotating magnetic fields of the wheels resulted in a current in each winding of the primary relay, but not of sufficient magnitude or of the right characteristics to cause the primary relay to operate and to show a green light in the cab. In the past 12 years,

there have been 72 failures of this type of control apparatus, though none previously have resulted in an accident. The I.C.C. report recommends, therefore, that the apparatus shall be modified in such a way that the audible indicator will sound whenever the visual indicator changes from green to red-over-yellow (the "reduce speed" indication), regardless of whether the speed-control mechanism is operating. Also, the track concerned is not provided with any lineside signals, as reliance has been placed entirely on the inductive control apparatus, save for the signals provided at interlocking towers; the I.C.C. report recommends that wayside signals be installed, working in conjunction with the train-control system. Attention is drawn to the systematic enforcement of operating rules, which, despite the a.t.c. failure, might have prevented these accidents if they had been properly carried out.

#### A Curious Mishap

The Interstate Commerce Commission has issued recently another report, on a collision of an unusual description which occurred just over half-a-mile north of the station at Wilmington, Delaware, Pennsylvania Railroad, at 11.35 p.m. on February 23, causing injury to 101 persons, 87 of whom were passengers. Train No. 457, from Philadelphia to Cape Charles, consisting of 11 vehicles, was standing awaiting the attachment of two coaches, which were being backed towards it when they collided at 20 m.p.h. with the standing train. They were being propelled under a "proceed at restricted speed" indication, which limits speed to 15 m.p.h., and requires that the train concerned shall be prepared to stop short of any other train on the same line. In accordance with normal procedure in the U.S.A., where much backing of trains is done at terminals, a conductor was keeping a look-out from the vestibule door in front of the two cars, and for control purposes this front end was equipped with the customary brake-valve on the end of a back-up hose; the hose, however, had been hooked to the vertical handhold on the post of the vestibule door, but in such a position that the conductor could not reach the valve. On seeing the tail lamps of No. 457, 650 ft. ahead, and finding the valve out of reach, the latter ran through the car to reach the conductor's brake-valve, but was too late. In the report, the Commissioner blamed both the excessive speed of the backing train, and also the inaccessible position in which the back-up hose had been left.

### ARGENTINA

#### Professional Meetings

The inaugural meeting of the current session of the Argentine & River Plate Centre of the Institute of Transport was held on June 1 and took the form of a luncheon, after which four short papers on "The Fuel Problem in Argentina in its Relation to Railway Operations" were given by Mr. M. F. Ryan, General Manager of the Buenos Ayres & Pacific Railway; Mr. John Wilson, General Manager of the Entre Rios and Argentine North Eastern Railways; Major R. K. Hubbard, Assistant General Manager of the Central Argentine Railway; and Major O. Loewenthal, General Manager of the Buenos Ayres Great Southern and Buenos Ayres Western Railways. There was an attendance of 150; Mr. G. C. Bonner, Chairman of the centre, presided.

The programme for the remainder of the session includes "The Grain Trade in the Argentine Republic," by Mr. W. Hovell (which took place on July 6); films dealing with the petroleum industry (August 3); "brains trust" meeting (September 7); "Reciprocal User of Wagons in Argentina," by Mr. F. B. Lowry (October 5); and the annual general meeting (November 2).

#### Railwaymen Aid Prisoners of War

At a meeting held in the restaurant of the Retiro Terminus, Central Argentine Railway, Buenos Aires, on Empire Day, May 24, a cheque for \$15,000 (approximately £882), collected by the non-British staff of the company for the purchase of foodstuffs for prisoners of war, was handed to the British Ambassador, Sir David Victor Kelly, K.C.M.G. In acknowledging the gift, the Ambassador commented on the fact that this amount, added to the \$90,000 (£5,294) already given, brought the total sum collected by the non-British staff of the Central Argentine Railway for the support of the prisoners of war to \$105,000 (£6,176); the total amount collected by the committees in the different districts for the Red Cross and allied organisations was \$230,000 (£13,529).

### CHINA

#### Yangtze Railway Tunnel

According to a recent report from Tokyo, a tunnel is to be built under the Yangtze River near Nanking to connect the railway systems north and south thereof; and work is to be commenced shortly. This represents an alternative to a scheme evolved before the war, which envisaged the building of a bridge over the Yangtze to connect the Peiping-Hankow Railway with the Wuchang-Canton line.

#### New Canals

A scheme has been prepared by the Japanese for a canal, some 310 miles long, to connect the Hwangho river in northern China with the Imperial Canal in Shantung Province. The canal is to begin near Cheng, in Honan province. Although its construction is to absorb 6,000,000 working days, it is believed that it will be possible to complete it by May, 1944. In addition to easing the transport problem in the provinces concerned, the canal would contribute towards avoiding the yearly recurrence of flooding by the lower Hwangho. It is reported also that the Poyang dam, deviating the water of the Hwangho into the Tahsing river in northern China, was completed recently.

### MANCHURIA

#### S.M.R. Budget

In the budget of the South Manchuria Railway for the financial year beginning April 1, 1943, receipts are estimated at 1,220,000,000 yuan, and expenditure at 1,125,000,000 yuan; the expected surplus is 95,000,000 yuan, or 10,000,000 yuan more than that envisaged in the previous budget. Expenditure on new works is shown as 161,000,000 yuan, and that in respect of subsidiary companies at 325,000,000 yuan.

Financial transactions to be carried out in the present budget year include the issue of debentures totalling 280,000,000 yuan, and the calling-in of the instalments, totalling 60,000,000 yuan, due on privately-owned shares, as well as of 70,000,000 yuan due on shares owned by the Japanese Government.

Late last April, the South Manchuria Railway celebrated the running of the 25,000th km. by vehicles of its road-motor service.

## Results of Electric Traction in Sweden

## Wartime experience has confirmed the wisdom of the policy of electrification adopted in Sweden

THE economic aspect of electrification has assumed a constantly increasing importance in Sweden with the progress of the war, and Herr Thelander gives some interesting facts illustrating the position in a recent issue of *S. J. Nytt*. The situation of Sweden during and after the last war powerfully influenced Parliament and the Government in deciding to embark on an extensive programme of electrification and during the present struggle further sections of line have been converted from steam to electric traction and work is proceeding on others. In all cases where the change has been made the result has been a reduction in operating costs, varying to some extent with the circumstances of each route. Electric power is relatively cheap in Sweden and less staff is required with electric than with steam locomotives; the maintenance charges are also lower. In other directions, too, savings are effected and although electric working brings its own additional charges, there has been an overall gain in all instances. The price of coal, which has fluctuated considerably in Sweden, has a marked effect on the return on the capital cost of electrification, but the cost of power from hydro-electric plants remains sensibly constant.

Some comparative figures concerning the electrification of lines in Skåne are of interest in this respect. The total estimated capital expenditure has been placed at 11.1 million kronor for the Hälsingborg-Hässleholm line and 6.5 for the Eslöv-Ramlösa line. Taking the 1938 volume of

traffic, the following percentage returns are obtained under varying coal prices:—

Section of line	Price of coal per tonne, kronor			
	25	50	75	100
Hälsingborg-Hässleholm	1.7	3.6	5.6	7.5
Eslöv-Ramlösa	1.8	3.5	5.1	6.7

The figure thus improves between 3 and 4 per cent. with a rise in the price of coal from 25 to 75 kr. per tonne. With a price of 50 kr. a satisfactory figure can certainly be obtained. Even if the coal market reverted to pre-war conditions, electrification would still be worth while. Certain of the capital expenditure under consideration is not absolutely necessary for the carrying out of electrification; the opportunity has been taken to effect some general improvements at the same time, which enable electric working to function to better advantage, but would not ordinarily be considered necessary for some time yet. As electrification almost invariably leads to an improvement in the traffic, the real gain is effectively more than the above figures indicate. There are also certain general indirect results which are difficult to define but which are an all-round improvement.

Making allowance for the fact that the steam locomotive stock will not need renewal, and taking the figures for steam working in 1938 and for electric operation with capital expenditure limited to that involved in changing the system of traction only, it is considered that the figure for converting the Hälsingborg-Hässleholm section could be put at 9.5 million kr. and

at 4.5 million kr. for the Eslöv-Ramlösa line. The resultant other figures would then be, for percentage return:—

Section of line	Price of coal per tonne, kronor				
	25	50	75	100	130
Hälsingborg-Hässleholm	2.0	4.2	6.5	8.7	11.5
Eslöv-Ramlösa	2.6	4.9	7.1	9.3	11.7

The present price of coal is about 65 kr. per tonne and the figures stand at 5.6 and 6.2 per cent. for the two routes respectively. A total annual saving of 190,000 or 120,000 kr. should then be obtained, but these sums would become 710,000 and 370,000 kr. if electric working replaced wood-burning engines, which work at a figure corresponding to a coal price of 130 kr. per tonne.

It is, of course, understood that electrification itself costs more under the existing war conditions than it would need to do in normal times and that traffic—or at least the income therefrom—needs to be more than the 1938 amount. On some routes in Sweden the war has enormously stimulated the goods traffic. From the point of view of the community, it can be said that electrification has been a benefit to Sweden, offering improved and cleaner services, and encouraging the development of certain districts for housing and other purposes. In Sweden's present difficulties, with her trade relations so much interfered with by the war and the current of traffic diverted into new channels, the electrified routes have shown their adaptability.

The saving in fuel has enabled industry to benefit by the setting free of stocks which would otherwise be needed for locomotives and had the railways not been electrified to the extent they are, ordinary fuel consumers would have had to suffer appreciably.

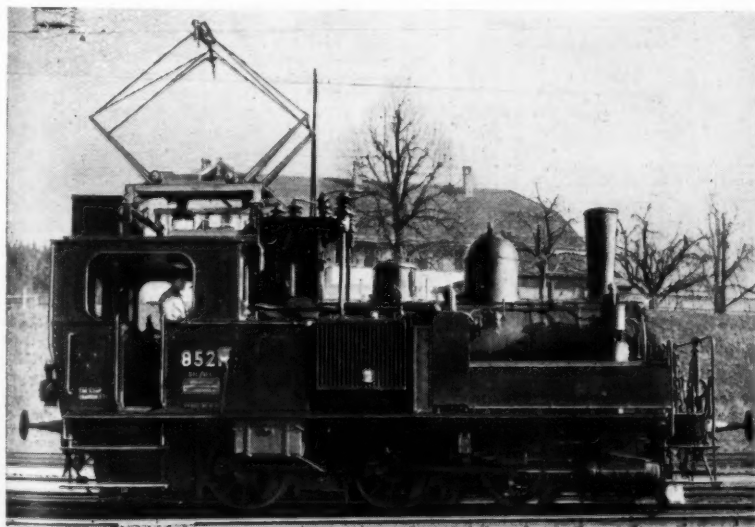
## Electrically-Generated Steam Power

TO obviate the use of coal, which has become difficult to obtain in Switzerland, steam shunting locomotives, originally built in 1913, have been equipped with means for electrically heating their boilers, presumably because no suitable electrically-driven units either existed or were likely to be forthcoming

from any of the already fully-employed factories of electrical-equipment manufacturers. We understand that two such conversions have been carried out by the Swiss Federal Railways; the shunting units affected are those working at St. Gallen and Zollikofen.

Tubular elements, provided on both

sides of the boiler, are connected with the secondary windings of two oil-cooled transformers which have air-cooled radiators in the oil circuit; a pantograph of normal type is mounted on the roof of the cab. The electrical equipment was supplied by Brown Boveri & Company, of Baden, and conversion of the engines was carried out in the Federal Railway workshops at Yverdon. Power consumption figures for the converted engines are not yet available, but it is understood that they are very high compared with those of an electric locomotive of equal power. This result was expected (see p. 80), and such a sacrifice of electric power is tolerated only as a drastic emergency measure to meet an extreme war-time difficulty.



Swiss shunting engine with electrically-heated boiler

AMERICAN STANDARD DEFINITIONS OF ELECTRICAL TERMS.—New York: The American Institute of Electrical Engineers, 33, West Thirty-Ninth Street. 10½ in. x 7½ in. 311 pp. Price \$1.25.—This comprehensive volume is rather more than a mere glossary, the treatment of some terms being expanded almost on concise textbook lines. As a draft, it was approved by the American Standards Association in August, 1941, and by the Canadian Engineering Standards Association in March, 1942, indicating the close measure of collaboration between the two nations of the North American continent, and subsequent publication has now made the definitions available for industrial purposes. Compared with British usage there is a broad and pleasing similarity, and even when differences arise they are seldom likely to lead to confusion. (See editorial article, page 81).

## Railway Coaling Plants—II\*

### *A detailed survey of the principles and installations involved in fuelling locomotives*

By J. Dalziel, formerly Assistant Electrical Engineer, L.M.S.R.

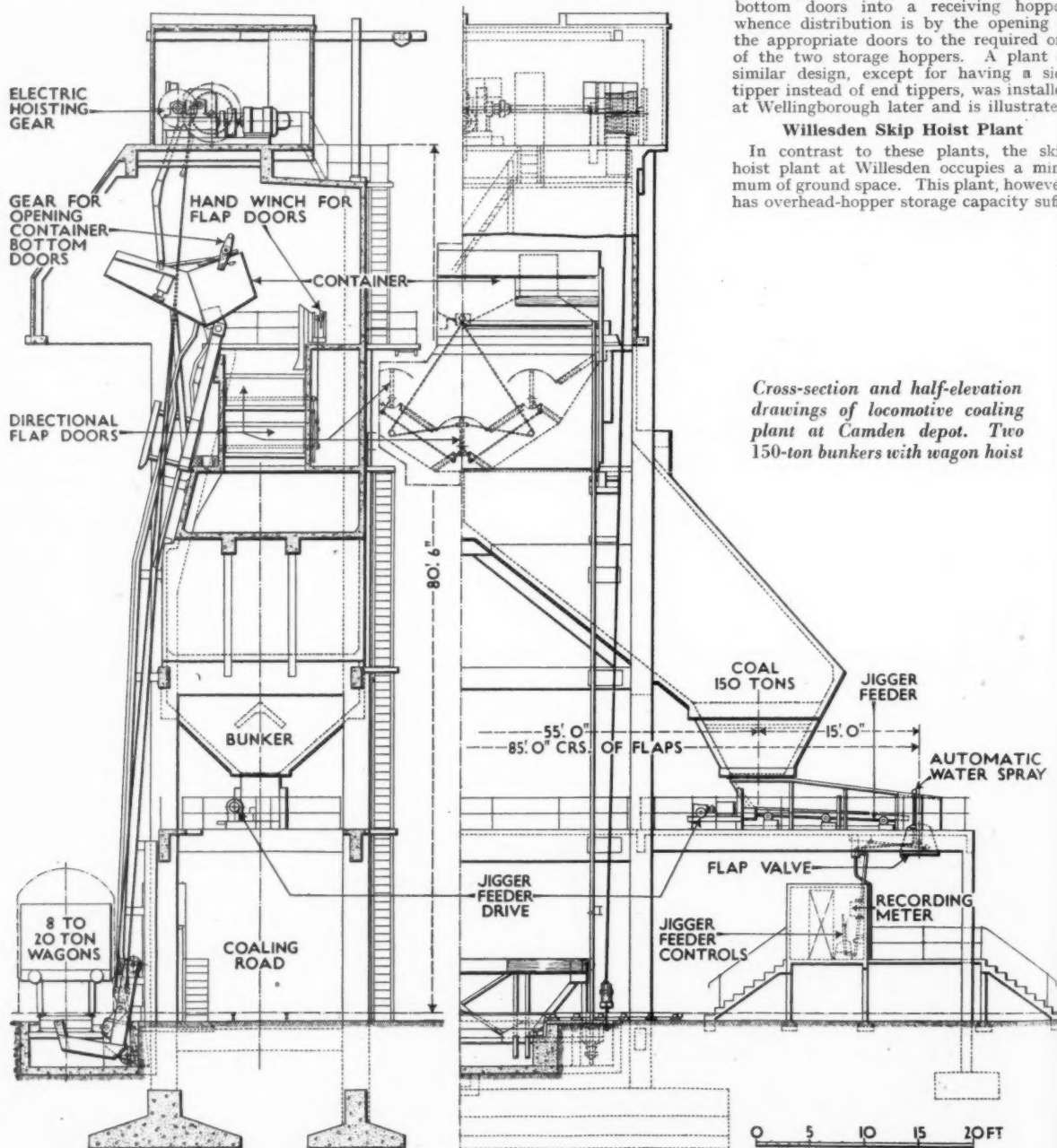
A plant developed from the experience gained on the Crewe plant was that at Camden wherein the storage hopper was underground and fed from two end-tippers; the wagons had therefore to be of the end-door type. It is necessary in such cases either to instal two tippers, or a tipper and a turntable, involving the disadvantage of an additional movement as in

general the wagons have doors at one end only. The coal is carried to the head of the delivery chutes by a bucket conveyor with buckets of large capacity capable of handling the largest lumps and fed from the hopper by a jigger feeder. Similar plants, except in some cases with side instead of end tippers and capable, therefore, of handling any ordinary wagon, have been erected elsewhere. The main objections to this type of plant are the large ground space occupied, the extent

of underground storage and of consequent excavation, and the possibility of water troubles. These objections, however, are lessened where side tippers are used. The necessity for running the elevator whenever an engine is coaled and the difficulty of dealing with two kinds of coal, if this be necessary, are also disadvantages. Especially with side tippers, there should be less free fall of the coal anywhere than with some other forms of plant about to be described and, therefore, less liability to breakage, and still more is this so where belt instead of bucket conveyors are used; these, however, involve more ground space on account of their smaller angle of lift. A later plant at Camden is of the overhead-hopper wagon-hoist type with discharge into an anti-breakage container, which in turn empties through automatically-opened bottom doors into a receiving hopper, whence distribution is by the opening of the appropriate doors to the required one of the two storage hoppers. A plant of similar design, except for having a side tipper instead of end tippers, was installed at Wellingborough later and is illustrated.

#### Willesden Skip Hoist Plant

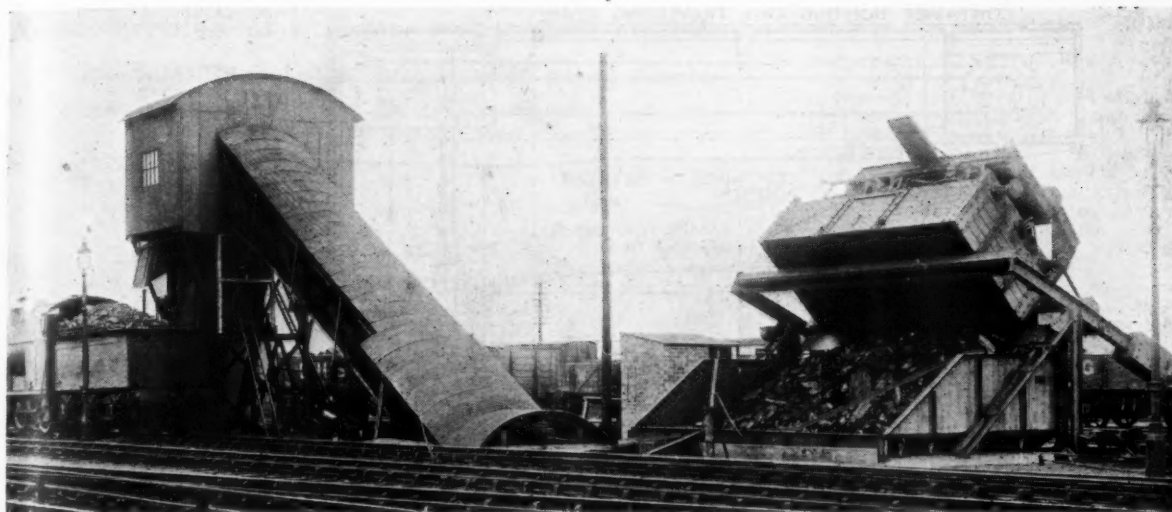
In contrast to these plants, the skip hoist plant at Willesden occupies a minimum of ground space. This plant, however, has overhead-hopper storage capacity suffi-



Cross-section and half-elevation drawings of locomotive coaling plant at Camden depot. Two 150-ton bunkers with wagon hoist

\* Part 1 was published in our July 9 issue





*The plant at Wellingborough, which has side tippers, and is generally similar to the Camden plant described in the accompanying article*

cient only for one engine, namely 5 tons. Its tipper is of the rotary type with hopper underneath, the outlet from which is controlled by an automatic rotary plate feeder delivering into a skip of 1 ton capacity. When the skip is filled, the feeder is stopped by the action of its weight on a counterbalance, and the skip motor is started in the lifting direction. The skip, which is an open-top box in this, as in other skip hoists, is carried at a steep inclination by two pairs of side wheels on separate tracks and is lifted by a rope. At the top to discharge it, the track of the leading, or top, pair of wheels is curved over and that of the hitherto lower pair is continued upwards so as to invert the skip sufficiently for its discharge, on which it automatically stops and reverses the lifting gear, returning it to the filling position and restarting the feeder. The skip weight and part of the weight of the coal, generally half, are balanced to reduce the maximum motor load. This has no direct effect on total power consumption, but the effect of using the smaller motor and of its having a better average loading is to increase the overall efficiency to the extent of saving power up to about 15 per cent.

Skip hoist elevation is widely used, more particularly for plants of small and medium capacity. It has practically superseded conveyors of belt, tray, and bucket types, as it is much more compact. It is used on the small "topping-up" plants mentioned previously and the method of discharge is as already described.

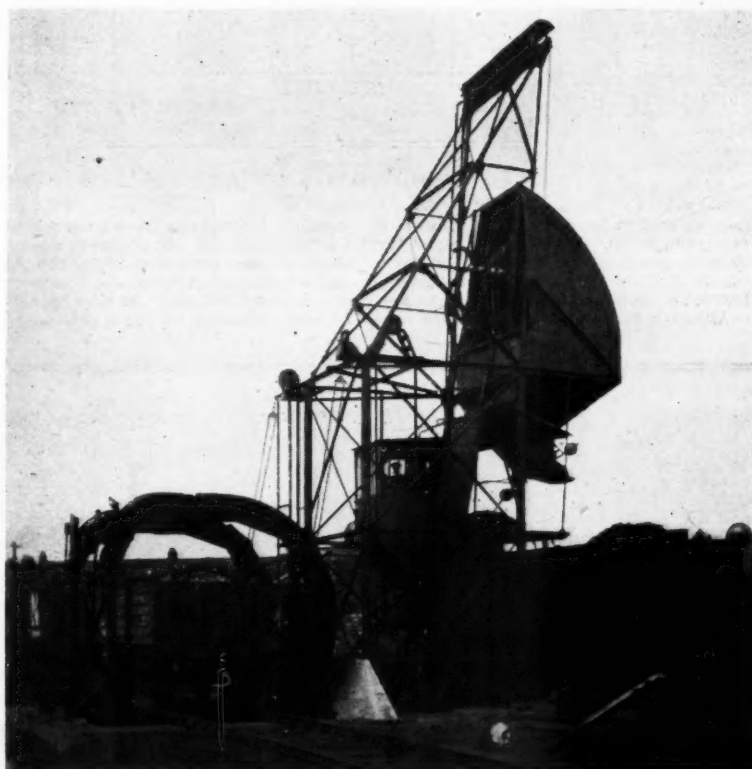
Most skips work in the manner indicated but they may be of much larger capacity than at Willesden; the skip may be of any capacity up to that of a 20-ton wagon; also it may be discharged and fed in various ways. In some cases, two skips counterbalancing each other are used; they may also be used with the wagon being tipped direct into the skip or with the intermediary of a hopper and a feeder of any of the various types. In some plants such as that at Derby, which is illustrated, the container is traversed across the tops of the hoppers and tipped to empty into either of them as desired.

#### Crewe South Wagon Hoist Plants

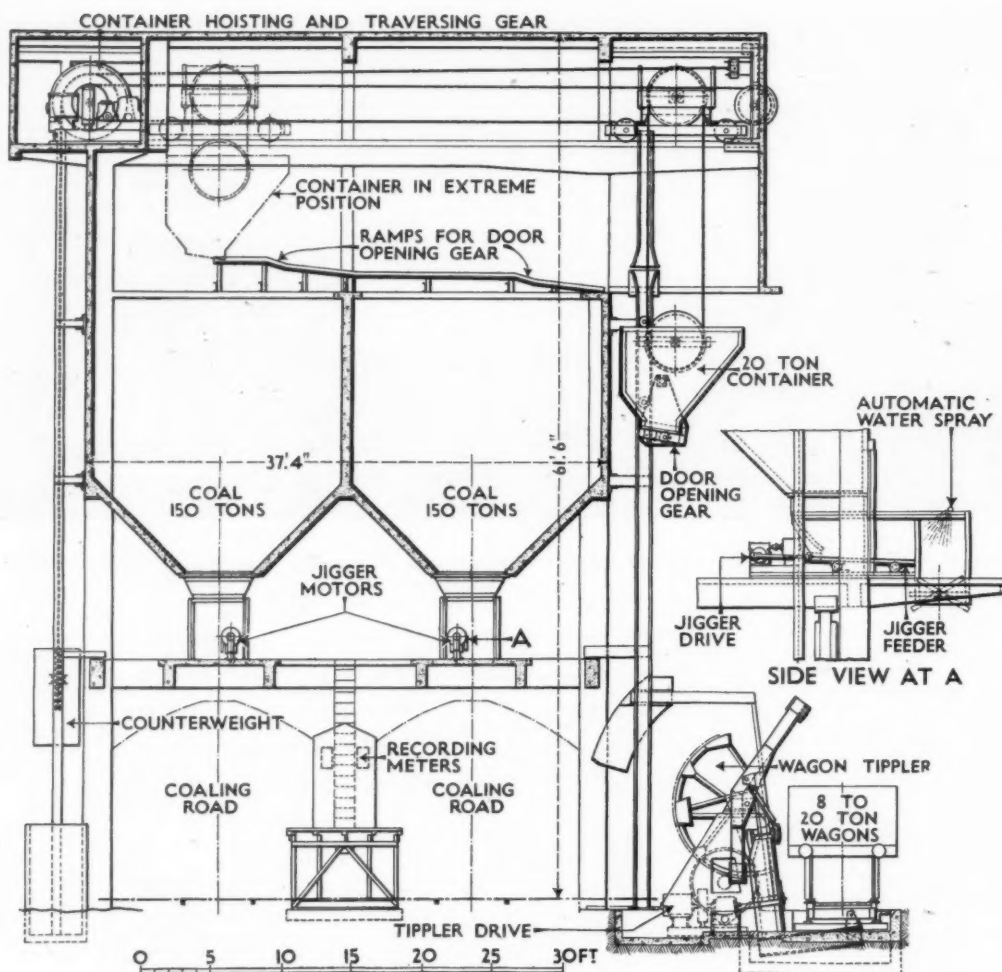
After the Willesden plant, various railway plants were installed at Crewe South and other stations. These have large-

capacity overhead hoppers served by a combined wagon hoist and tipper which lifts and discharges the coal wagons themselves. The operating mechanism is reduced to only one motor with its gearing switchgear and so on; tipping at the top of the lift is effected much as in ground level side tippers by the lifting and rotation of the wagon-lifting cradle on multiple pivots.

The design has the disadvantages (1) that the mechanism for lifting and tipping a wagon instead of a container of simple type must in itself be complicated, (2) that a good deal of extra weight must be dealt with in lifting the wagon no matter how the maximum load is reduced by counterbalance and (3) that it is difficult to see and intercept foreign material falling out of the wagon



*The skip hoist plant at Willesden, which has overhead-hopper storage capacity of only 5 tons*



Typical No. 1 size coaling plant. Two 150-ton bunkers with container hoist

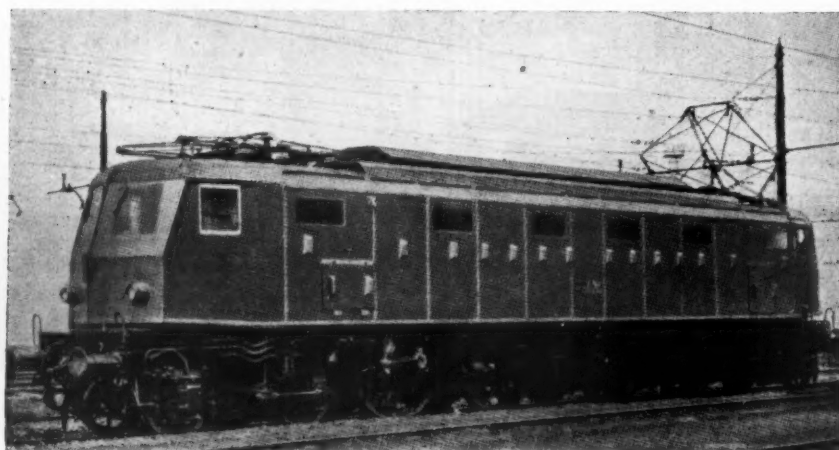
such as bottom boards, top rails, shunting poles, and so on. The lengthening of the cycle time by other operations being at a standstill while the wagon is lifted and re-lowered could be an objection in some cases.

Although many plants of this type were

installed, later plants have been mainly in a form embodying side tippers at or slightly above, surface level discharging the wagon into a container in which the coal is taken up, that is, practically on skip hoist lines. In both types the hopper is generally par-

tioned to provide for storage of two or more grades of coal and it is narrowed at the top at right angles to the partitions so that the coal may be diverted into them as required by throwing over flap valves.

(To be continued)



### One of the latest express electric locomotives, Italian State Railways

The locomotive has the 2-Do-2 wheel arrangement (individual axle drive) and is for working on the main lines electrified on the 3,000-volt d.c. system, now adopted as standard practice, except in districts in the north-east and north-west where contact is made with other systems

## Rapid Erection of a Butterley Standard-Unit Bridge

*Recently a 270-ft. bridge was placed in position across a waterway in 120 hr. by nine men and two boys*



IN our issue of May 28 some details were given of the construction of a wide variety of bridges of differing spans and loadings made possible by the Butterley standard-unit system. Recently in the short time of 120 hr. a bridge urgently required across one of Britain's waterways was erected by this means. The bridge consists of three spans of 90 ft. single-girder single-tier construction, to carry lorries up to 14 tons weight. An illustration of the completed bridge is given at the head of this article.

The time taken in erection, after materials were delivered to each shore edge and the abutments and piers were in position, was not achieved by the employment of a large number of erectors—only nine men and two boys accomplished the whole work.

The Butterley standard-unit system is designed for the rapid erection of permanent or temporary bridges, using five standardised parts only. These comprise the following: (1) welded box girder for all chord and diagonal members; (2) connecting bobbin for intersection points; (3) cross girder suspension plate; (4) cross girder unit, and (5) floor plate.

The essential feature of the design is

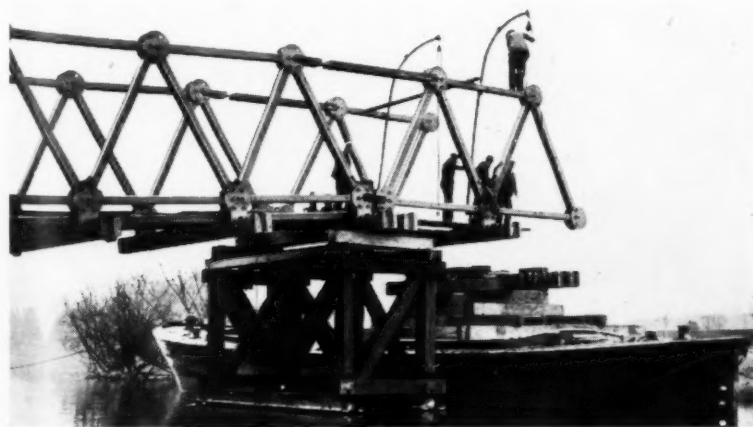
the use of the five members (which are completely interchangeable; they are made on jigs to a high standard of accuracy) in different constructions to form all types of bridge from a light footbridge to a heavy bridge of 150 ft. single span. All parts are easily handled with light appliances, since no part is of excessive weight, and there is no rivetting to be done either in the production stages or on site. The design incorporates features which assist in erection and the attachment of tackle, davits, etc., used in assembly.

In the case of the bridge erected in 120 hr., two concrete abutments were made and then two piers were driven and erected, each consisting of six timber piles 14 in. x 14 in. suitably braced and having steel-channel supports fixed at the top to receive the steel superstructure. The road access to the bridge was from one side of the river only, so that one half of the superstructure material had to be transported across the river.

The approach spans have a gradient of



*A view of the second approach span—note the standard-unit parts stacked in the foreground*



*Commencing the building of the centre span by cantilevering out in halves from the piers. Note the screw adjustment for positioning the halves for final joining*

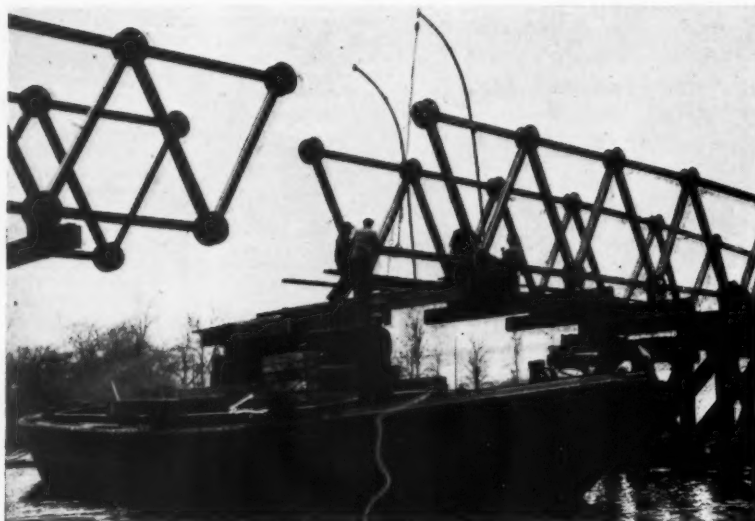
1 in 11.25 to allow 12 ft. clear headroom under the centre span to permit river traffic to pass below and, as the working space on shore was 20 ft. only, the launching of the completed spans in the normal way was not practicable. It was, therefore, necessary to build a portion of the bridge on shore, and as the erection proceeded the pier end was placed on a barge so that, as additional units were erected to the girders at the shore end, the barge and steelwork were moved out into the stream to nearer the pier until 90 ft. of the bridge was completed and afterwards lowered on to the abutments and piers.

The 90 ft. centre span was cantilevered out in two halves from the approach spans, and the halves were joined at mid centre-span. Temporary ties with screw adjustment were attached to the top chord over the piers to support each cantilevered portion during erection. Fine adjustment of the screws made possible the joining of the halves of the centre span by means of standard pins, which are a feature of the design. When the centre span had been joined, the tem-

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*The halves of centre span being brought towards each other*

porary ties on the top chords were removed, thus making each span independent. Expansion is taken care of on the piers by machined steel bars which allow one end of each span to slide as required.

The weight of the steelwork in each span of 90 ft. is 30 tons, and the manufacturing time at the works for all the steelwork of the bridge was only three weeks. The employment of welded construction of a high degree of accuracy enabled the parts to be fabricated with ease and rapidity at low cost. The standard of interchangeability was such that the pins at all intersections were immediately inserted, including the pins for the final joining.

The bare minimum of material was brought to the site, and when the men had finished, the bridge was put into use. There was no clearing up required and no tackle other than the standard davits, spanners, etc. These davits are a feature of the design and are so made as to be attached in cups and sockets to each bay as the work proceeds, which simplifies the positioning of the various units as erection goes on.



*Cab fittings of U.S.A. "S160" class 2-8-0 locomotive, now at work in Great Britain*

- |                                |                                      |                                       |
|--------------------------------|--------------------------------------|---------------------------------------|
| 1 Regulator handle             | 13 Mechanical lubricator steam valve | 25 Firehole door                      |
| 2 Reversing lever              | 14 Air pump steam valve              | 26 Firegrate rocking levers           |
| 3 Vacuum automatic brake lever | 15 R.H. injector steam valve         | 27 Injector water and overflow valves |
| 4 Steam valve, small ejector   | 16 Blower control valve              | 28 Injector operating levers          |
| 5 Steam brake lever            | 17 Coal watering cock and hose       | 29 Driver's seat                      |
| 6 Whistle pulls                | 18 Water gauge                       | 30 Locker and fireman's seat          |
| 7 L.H. injector steam valve    | 19 Water gauge drain valve           | 31 Flag box                           |
| 8 Blower steam valve           | 20 Water gauge bottom stop valve     | 32 Steam sanding lever                |
| 9 Steam sander valve           | 21 Water gauge rod to top stop valve | 33 Three water level test cocks       |
| 10 Steam brake valve           | 22 Boiler pressure gauge             | 34 Cylinder cock lever                |
| 11 Steam shut off valve turret | 23 Westinghouse brake gauge          | 35 Westinghouse brake lever           |
| 12 Vacuum brake steam valve    | 24 Vacuum brake gauge                | 36 Steam brake lubricator             |

## RAILWAY NEWS SECTION

## PERSONAL

The *London Gazette* of July 16 announces that on July 13 last at Buckingham Palace, the King conferred the honour of Knighthood on the under-mentioned gentlemen:—Mr. John Craig; Mr. Archibald McKinstry; and Mr. Charles Henry Newton.

## GREAT NORTHERN RAILWAY (IRELAND)

The directors have made the following appointments, with effect from July 1:—

Mr. H. Evans to be Assistant to the Traffic Manager (Operating).

Mr. J. F. Atkinson to be Assistant to the Traffic Manager (Commercial Indoor).

Mr. A. M. Beaton to be Assistant to the Traffic Manager (Commercial Outdoor).

Colonel Sir A. Stanley Angwin, D.S.O., M.C., Engineer-in-Chief, General Post Office, has been elected President of the Institution of Electrical Engineers. Mr. T. G. N. Haldane, and Dr. E. B. Moullin, who is serving temporarily as a senior member of the research staff of Metropolitan-Vickers Electrical Co. Ltd., have been elected Vice-Presidents. Mr. E. S. Byng becomes Honorary Treasurer.

Mr. J. S. Wills has been elected Chairman of Ribble Motor Services Limited in place of Mr. S. E. Garcke, who has resigned the Chairmanship but retains his seat on the board. Ribble Motor Services Limited is one of the B.E.T. group.

Mr. R. T. Ebrey has been appointed General Manager of the Western Welsh Omnibus Co. Ltd. (one of the B.E.T. group, and an associate of the G.W.R.), as from September 1, in the place of Mr. W. T. James, who is resigning to take up an appointment at the B.E.T. headquarters. Mr. Ebrey is at present General Manager of East Yorkshire Motor Services Limited.

Mr. C. R. H. Wreathall has been appointed General Manager of the East Yorkshire Motor Services Limited, as from September 1, in succession to Mr. R. T. Ebrey, who is transferring to the Western Welsh Omnibus Co. Ltd. as General Manager. Mr. Wreathall is at present General Manager of Hebble Motor Services Limited.

Mr. R. W. Birch has been elected Chairman of the Potteries Motor Traction Co. Ltd. (a subsidiary of the British Electric Traction Co. Ltd.) in place of Mr. Sidney Garcke, who has resigned from the board. Mr. R. P. Beddow has been appointed a Director of the Potteries Company.

Mr. G. E. Bailey, who is a Director of Associated Electrical Industries Limited, has been presented by his colleagues on the management board of the Engineering & Allied Employers' National Federation with an engraved silver tray in recognition of the work which he has done for the federation since 1921. After acting as Vice-President for a number of years, Mr. Bailey succeeded Commander Sir Charles Craven as President in 1940, which office he held till February of this year, when the general council appointed him a trustee of the federation, so that it might retain the benefit of his wide knowledge of engineering problems.

Captain J. W. Harris, R.N.R., Marine Manager, L.M.S.R., is retiring at the end of this month. Captain Harris was born in Glasgow in 1880 and from 1895 until 1900 was at sea in sailing ships. In November of the latter year he joined the Booth Line as Third Mate. He passed for extra master in 1904 (sail), and was appointed Chief Officer. In July, 1909, he passed the voluntary examination in steam, and in November of that year was promoted Master, and commanded several of the company's steamers, including *Ambrose*, *Antony*, and *Hilary*. During the winter of 1914 Captain Harris served as Lt.-Commander, R.N.R. (Ret.), in the Fleet sweepers, and later commanded the Fleet



Captain J. W. Harris, R.N.R.

Chief Marine Superintendent, L.M.S.R., 1931-37  
Marine Manager, L.M.S.R., 1937-43

sweeper *Whitby Abbey* at the Dardanelles, taking part in the landing on April 25, 1915. At the request of the Booth Line, he was demobilised, and in June, 1916, was sent to New York as Marine Superintendent for the Booth Line and Alfred Holt & Company. In August, 1918, he was recalled and appointed Marine Superintendent of the Booth Line, with which company he remained until 1931. In August of the latter year he was appointed Chief Marine Superintendent, L.M.S.R., Euston, and, in 1937, Marine Manager. He is one of the original hundred members of the Honourable Company of Master Mariners, of which he was Prime Warden in 1935 and in 1941, since when he has held the position of Deputy-Master. He is a Younger Brother of Trinity House; the representative of the Honourable Company of Master Mariners on the Technical Committee of Lloyd's Register of Shipping; and an Associate Member of Council of the Institution of Naval Architects.

Señor H. del Castillo, formerly Governor of the Province of Córdoba, Argentina, has been appointed President of the Buenos Aires Transport Corporation, in succession to Dr. R. C. Segura.

We regret to record the death on July 14, at the age of 71, of Lt.

Colonel Walter Bridges, M.Inst.C.E., M.I.Mech.E., M.I.E.E., M.Cons.E., Principal of Walter Bridges & Company, Consulting Engineers, and Chairman & Managing Director of the Projectile & Engineering Co. Ltd.

Viscount Weir and Sir Harry F. Brand have been re-elected Honorary President and President, respectively, of the British Employers' Confederation for the ensuing year. Commander Sir Charles Craven, Chairman & Managing Director of Vickers-Armstrongs Limited, and of the English Steel Corporation Limited, and Mr. A. K. McCosh, a Director of the London & North Eastern Railway Company, have been re-appointed Vice-Presidents, with Mr. A. C. Macdiarmid, Chairman of Stewarts and Lloyds Limited.

Mr. Walter Ingleby, who retired from the post of Assistant to the Rating Surveyor, York, L.N.E.R., on June 30, began his railway career in that city in the Solicitor's Department under Sir George Gibb, and in 1898 was transferred to the Westminster office of the former North Eastern Railway. During his time in London he acted for a number of years as Secretary to the Railway Students' Association at the London School of Economics, and became well known to the older railway generation in London. In 1913 he returned to York as Chief Clerk in the Rating Department, and in 1928 was appointed Assistant to the Rating Surveyor, L.N.E.R.

The Council of the Royal Society of Arts has approved the appointment of the following to the distinction of R.D.I.:

Mr. Charles Holden, Litt.D., F.R.I.B.A., for design in connection with transport.

Mr. B. N. Wallis, C.B.E., Assistant Chief Designer of Vickers-Armstrongs Limited, for his work as an aircraft designer.

When inaugurating the distinction of Designer for Industry (R.D.I.) in 1938, the Duke of Gloucester said: "This distinction, which might be termed the blue riband of industrial art, is intended to be most exclusive, and only to be awarded to those who are fully worthy of it. For this reason it is laid down in the Ordinance governing the distinction that the number of holders of it at any one time must not exceed forty. It is also provided in the Ordinance that honorary diplomas can be bestowed upon distinguished designers of other countries."

Mr. R. J. Ellery, whose appointment as Secretary to B.E.T. Omnibus Services Limited, in succession to the late Mr. W. E. Bennett, was recorded in our issue of June 11, is a native of Perranporth, Cornwall, and was educated at Truro School where he captained the First Eleven Football Team. He joined the B.E.T. organisation in October, 1926, and had four years of training in the Chief Accountant's Office (Omnibus Section). He transferred to the service of Tilling & British Automobile Traction Limited in January, 1931, as Assistant to Mr. Bennett, the then Secretary, but rejoined the B.E.T. organisation early in 1939 to take up the appointment of Secretary to the British & Foreign Aviation group of eight air transport companies, in which the B.E.T. had then recently acquired an interest, and of which it had undertaken the management. Mr. Ellery was appointed Secretary to the British Omnibus Companies Public Relations Committee, formed in May, 1942.



*[Elliott]* **Mr. R. J. Ellery** *[G. Fry]*

Secretary, B.E.T. Omnibus Services Limited,  
and B.E.T. Federation Limited

to co-ordinate the publicity work carried on by operators of public service vehicles and on which are represented the owners of over 13,000 buses. In October, 1942, he was appointed Secretary to the B.E.T. Federation Limited, and resigned his appointments with the air transport companies when the B.E.T. disposed of its interests in them to the British railways. He was appointed Secretary to B.E.T. Omnibus Services in June, 1943, and continues to hold the Secretaryships of the Federation and the Public Relations Committee.

Mr. Joseph Harrison, Stationmaster, Euston, L.M.S.R., who was made a Member of the Order of the British Empire in the King's Birthday Honours List, has held that position since 1937. He entered the service of the former Furness Railway at Ravenglass, and, after serving at several other stations, was appointed Stationmaster's Clerk at Barrow, which post he left to join the Army in 1914. After serving in France, the Dardanelles, Egypt, and Salonika, he returned to Barrow in 1919 and became Assistant Stationmaster. Subsequently he was made Senior Relief Stationmaster, Furness & West Cumberland Section, L.M.S.R.; and was appointed Stationmaster, Carnforth, in 1925. He served in a similar position at Southport (Chapel Street) from 1931-34, and at Birmingham (New Street) from 1934 until his appointment to Euston. Mr. Harrison was a pioneer of the railway-men's mutual improvement classes.

Mr. W. H. Liley, whose death was recorded in our last week's issue, was appointed Signal & Interlocking Engineer, Great Indian Peninsula Railway, in 1917; his title was changed to that of Deputy Chief Engineer (Signals) in 1928, which position he held until his retirement in 1935. Mr. Liley gained experience in the Signal Department of the Taff Vale Railway, under the late Mr. W. Powell, and afterwards on the Metropolitan Railway. In 1906 he was appointed Assistant to the late Mr. I. W. Stokes, the first Signal Engineer of the G.I.P.R. Mr. Liley became Assistant Signal & Interlocking Engineer a year later. He was for many



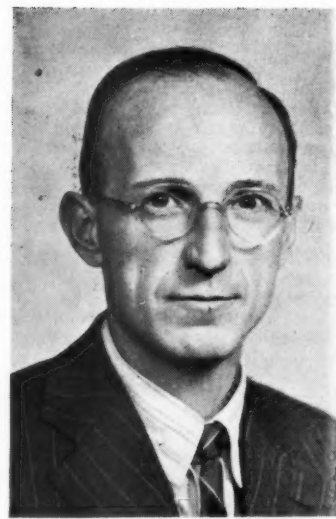
**The late Mr. W. H. Liley**

Signal & Interlocking Engineer, G.I.P.R., 1917-28  
Deputy Chief Engineer (Signals), 1928-35

years a member of the Signalling & Interlocking Standards Committee of the Indian Railway Board, and of the Signal Engineers' Committee of the Indian Railway Conference Association. After the outbreak of the present war, Mr. Liley, at the request of Mr. F. H. D. Page, Signal & Telegraph Engineer, G.W.R., undertook special duties for that railway. Among those who attended the funeral, which took place at Cardiff on July 7, were Mr. William Liley, brother; Sir W. Reardon-Smith, Director, Great Western Railway Company; Mr. F. H. D. Page, Signal & Telegraph Engineer, G.W.R.; Mr. F. E. Wainwright, late Divisional Superintendent, Cardiff, G.W.R.; Mr. T. Cox, late Inspector of the Taff Vale Section, G.W.R.; Mr. H. E. Morgan, Divisional Signal & Telegraph Engineer, Crewe, L.M.S.R.; Mr. H. M. Proud, Past President, Institution of Railway Signal Engineers, and Mr. C. F. D. Venning, and other members of the staff of the Westinghouse Brake & Signal Co. Ltd. Mr. Liley's signalling



**Mr. Joseph Harrison, Stationmaster, Euston, L.M.S.R., who was made a Member of the Order of the British Empire in the King's Birthday Honours List**



*[Lafayette]* **Mr. E. D. Croft** *[London]*

Appointed Joint Secretary (Employers' Side),  
National Council for the Omnibus Industry

work in India forms the subject of an editorial note on page 77.

Mr. Eric David Croft, M.A., B.Sc., A.M.Inst.T., has recently assumed a number of important positions in connection with the motorbus industry of Great Britain. As Secretary of the Public Service Transport Association, he has been closely associated with the merging of that body and the Omnibus Owners' Association, to form the new Public Transport Association Incorporated, of which he has been appointed Secretary, as recorded in our issue of July 2. In addition, he has become Secretary to the Conference of Omnibus Companies, and Joint Secretary (Employers' Side) of the National Council for the Omnibus Industry, both of which appointments were recorded in our July 16 issue. Mr. Croft was born at Exmouth in 1907, and was educated at Exeter School and St. John's College, Cambridge, where he took a Natural Sciences Tripos. He is also a B.Sc. of London University. After leaving Cambridge in 1928, he took a course in business management and administration at Harrods Limited, and later joined the Roads Improvement Association to undertake secretarial and publicity work. Early in 1931 he joined the editorial staff of the *Manchester Guardian Commercial*, and in 1934 he became technical editor of that paper. In the autumn of 1938, Mr. Croft was appointed Secretary of the Tramways, Light Railways & Transport Association, in succession to Mr. A. de Turckheim, and took office at the beginning of 1939. The name of the association was changed in July, 1939, to the Public Service Transport Association, and it has continued as such during the war years, with Mr. Croft as Secretary, until the recent merger with the Omnibus Owners' Association, of which details have already been published in our columns. Although a comparative newcomer to the road-transport industry, Mr. Croft has already demonstrated qualities which should prove of no small value to the British bus industry in the post-war period. (See editorial note, page 77.)

We regret to record the death on July 17, at the age of 63, of Mr. Sidney Woodward, Secretary of Cammell Laird & Co. Ltd.



## TRANSPORT SERVICES AND THE WAR—199

### Bank Holiday Travel Restrictions

Travel restrictions will operate from Friday, July 30, to Tuesday, August 3, inclusive. There will be no more long-distance trains than the maximum number run on a weekday, or on a Sunday as the case may be, in July, 1942, nor will there be any extra buses for holiday travel. When a train is run in parts, each part will count as a separate train. If, for instance, in July, 1942, the maximum number of parts run in the case of a particular weekday train was three, the company concerned may run it in two or three parts throughout the restricted period, except Sunday.

Service leave will be adjusted to reduce travel to the minimum. Concession fares for Service personnel going on short (48-hour) leave will not be available for rail journeys beyond 20 miles, except in special circumstances. Free or assisted travel for evacuated Government Staff, transferred Civil Defence personnel, and industrial transferees, will be suspended during the restricted period. Reduced fares for relatives visiting evacuees will not be available.

### Civilian Air Raid Casualties in June

The Ministry of Home Security has announced the following figures of civilian casualties due to air raids in the United Kingdom during the month of June:—

Killed (or missing, believed killed) ... .. 201  
Injured and detained in hospital ... .. 284

The casualties are classified as follow:—

	Men	Women	Under 16	Unidentified
Killed (or missing, believed killed) ...	118	67	15	1
Injured and detained in hospital ...	139	112	33	-

### Wartime Track

The shortages of materials such as timber and steel, as well as shortages of labour, have intensified the difficulties of maintaining railway tracks in war conditions, but up to the present it has been possible to effect a sufficient mileage of re-sleepering and re-laying to avoid the imposition of speed restrictions or the lifting of the less-used branch lines. Extensive experiments and trials have been undertaken with different types of concrete sleepers for use in place of timber, and twelve types have been laid in places where high speeds are not required; more than 361,500 concrete sleepers have been laid to date. Welcome supplies of timber sleepers have been received from Russia.

### Harvest Transport

Fewer Service vehicles will be available this year for carrying the harvest, which the Ministry of Agriculture expects to be a record one. To overcome any transport difficulties likely to have an adverse effect on gathering the crops, arrangements have been made to ensure that civilian road vehicles will be available for the use of farmers immediately the need arises. The arrangements provide also for the conveyance of workers. Farmers have been advised officially to make full use of their own transport, and to endeavour to obtain any necessary additional road transport by one or other of the following means:—

(1) Obtain help from neighbours. The recent concessions regarding the use of agricultural tractors for road haulage, and the reduction in the minimum age of tractor drivers, will facilitate action at this stage.

(2) Approach local hauliers. In many parts of the country there is a surplus of commercial haulage.

(3) Approach the officer commanding any Army (including Canadian and U.S.A.) or R.A.F. unit in the district, stating the number and capacity of vehicles required, and when they are wanted. The Army and R.A.F. have agreed to repeat the facilities granted last year, although, as already mentioned, there will be fewer vehicles available from these sources. The charge to the farmer will be on the scale laid down by the Ministry of War Transport for commercial haulage.

(4) Apply to the sub-district manager of the Ministry of War Transport.

The arrangements for the conveyance of harvest workers in goods vehicles without p.s.v. permits (until November 30) were outlined in our issue of July 2, page 21.

### Transport and Staggered Hours

To ease the difficulties of early morning bus transport for Keighley workers, about a dozen firms have agreed to stagger their opening times between 6.30 and 8 a.m., in accordance with a plan which is to come into operation on August 1. One firm is arranging to supply breakfasts to employees unable to breakfast at home because of the early start.

### Garden-Seat Buses to Save Rubber

Four buses with wooden-slatted seats are being placed in service in London on Routes 18c and 55. The buses are "G" (Guy) type four-wheelers, of which there are now 71 on London routes. They seat 56 passengers, 30 on the upper deck and 26 on the lower. These buses normally have soft seats composed of rubber or other filling, and are covered with moquette. It is to save these materials that slatted seats are now being introduced in accordance with directions from the Ministry of War Transport. All future wartime buses in the London Transport area will have seats of the new pattern. Slatted seats were used on some horse buses as long ago as 1881. They ceased to be standard in 1925, when buses began to be fitted with covered tops, and were eventually all withdrawn.

### Time Bombs for Bulgaria

A recent Bulgarian report discloses the uneasiness of the Bulgarian railway authorities at the increasing number of cases when goods wagons carrying ore from Serbia explode when on Bulgarian territory, by reason of delayed-action bombs having been concealed in the ore. Substantial damage is said to have been caused to the Bulgarian railways by this method of sabotage, which is thought to originate with the Yugoslav Patriots.

### Serbo-Albanian Through Traffic

Direct goods traffic between all Serbian railway stations on the one hand and "Albanian" railway stations on the other was instituted by the middle of April last. Formerly it was restricted to stations on the Slatina Ibarska to Priluzje line, the 29-mile section of the Yugoslav main line from Kraljevo to Skopje which is now regarded as being in "Albanian" territory. Slatina Ibarska is 67 miles to the south of Kraljevo. The position of this section of line was indicated on the map published at page 139 of our issue of August 7, 1942.

### Roumanian Transit Traffic Resumed

Direct Roumanian railway traffic through Yugoslav territory between Baziash (the westernmost Roumanian Danube port) and Timishoara was resumed on April 1. Baziash, the southern terminus of the line is in Roumanian territory, but at Vracev Gaj, 3 km. to the north, the line passes

into Yugoslavia. The railway leaves Yugoslav territory at Vrsac, the junction with the Belgrade-Pancevo line. The rail distance between Timishoara and Baziash is 74½ miles; the section on Yugoslav (Serbian) soil is 35 miles. The Roumanian transit traffic comprises the conveyance of passengers, goods, luggage, livestock, and mail. Roumanian fares and rates are applied between Roumanian stations south and north of Yugoslav territory, in addition to a supplement to cover the transit section.

### Peat Transport in Russia

The railway workers of the "October" line are reported to have exceeded by 25 per cent. their June quota for peat deliveries to Leningrad. Leningrad relies on peat fuel to a considerable extent for its large armament factories. Important peat deposits are worked to the south-east of Leningrad.

### Another Russian Armoured Train

At the formal handing over to the Red Army of an armoured train, presented by technicians and workers of the Moscow Circular Railway, the Red Army representatives pledged themselves "to make full use of the train, to see that every shell reached its target, and to make the train the terror of the enemy." We are indebted to the *Soviet Monitor* of July 7 for these particulars.

### Methane Railcars in Italy

Methane-gas operation has now been adopted for a number of railcars of the Italian State Railways working in the eastern region of the methane area of Lombardy, the main centre of which is Piacenza. The first methane-gas fuelling station of the Italian State Railways was opened recently at Rovigo railway station, midway on the Venice-Bologna main line. The tank station has a daily capacity of 353,170 cubic ft. of gas, and is connected with the new pipeline extending northwards from Bologna, where it is linked with the Piacenza pipe-line.

### Railway Staffs in Holland

The recruitment of labour from occupied countries to work in German industry has recently affected the Dutch transport system. Women are now engaged by the Netherlands Railways to replace men, and they are being trained for duty as ticket collectors and passenger guards. Only unmarried women over 23 years of age are eligible at present.

The overcrowding of trains has resulted in great difficulties in the inspection of passenger tickets, which in recent years had been carried out exclusively in the train en route, the inspection at the platform entrance having been abolished. This policy has now been reversed, and a considerable saving in staff must undoubtedly ensue.

### Budapest-Vienna Bus Connection

Although practically all the long-distance bus services on the European Continent have long since disappeared, most of them from the early days of the war, an outstanding exception has been provided by the international route between Budapest and Vienna, operated jointly by the Mavauto (the road motor organisation of the Hungarian State Railways), and the German Reichspost. This, however, was discontinued on April 3 last. One service daily was run in each direction, with buses leaving Budapest (Mussolini Place, in the centre of the town) at 7.20 a.m., and arriving in the centre of Vienna (near the Opera) at 1.15 p.m. In the opposite direction the departure was at 1.30 p.m., with arrival at Budapest at 7.25 p.m. In





western Greyhound Lines and the Santa Fe Trail Transportation Company, in respect of the services between Albuquerque and Tucumcari, New Mexico—an area in which the requirements of army establishments are considerable—are covered by Special Order No. ODT B-40 of April 2. Earlier steps in the compulsory pooling of U.S.A. bus services were recorded in our February 19 issue, page 197.

#### Bessemer Steel in U.S.A. Rails

As a war emergency measure, the use of Bessemer steel in rails and track accessories is permitted by Schedule 7 to Order L-211, amended from May 7 by the War Production Board. As the acid process is not specifically mentioned, and as in any event most countries accept acid Bessemer steel in rails on equal terms with the basic open-hearth product; it may be assumed that the new authority extends to basic Bessemer steel. This quality is used largely for rail steel manufacture on the mainland of Europe, but is not at present admitted in Great Britain.

#### A Cancelled American Convention

Direct action by the Office of Defense Transportation resulted in the cancellation of a convention which was planned to take place in Peoria, Illinois, U.S.A., in the middle of April last. This was the annual Illinois Congress of Parents and Teachers; and applications from intending participants caused a complete selling out of all seating accommodation on two trains between Chicago and Peoria, with the result that the railway concerned applied to the O.D.T. for permission to run duplicate trains. An official communication from the O.D.T. to the organisers of the congress secured the abandonment of the fixture.

#### Eastman Joins the U.S.A. War Production Board

In the last week of April Mr. Joseph B. Eastman, Director of the U.S.A. Office of Defense Transportation, was given a seat on the War Production Board as its first transport member. This appointment comes at an opportune time, as Mr. Eastman has been one of the foremost critics of the W.P.B. policy of cutting down the supply of steel to the railways, which, it has been announced, has been intensified by a reduction of 40 per cent. in the railway steel allocations for the third quarter of 1943; and it is generally hoped that Mr. Eastman's participation in the W.P.B. deliberations may result in some reconsideration of this drastic decision. Other appointments to the W.P.B. are Mr. Paul V. McNutt, Chairman of the War Manpower Commission, and Mr. Harold L. Ickes, Petroleum Administrator for War.

#### A Railway Warplane Achieves Distinction

In 1942, employees of the New York Central System collected \$250,000 to purchase a B-26 Marauder medium bomber for the U.S. Army Air Force, and it was named *New York Central*. News has now been received that this aeroplane made 13 sorties from North Africa between January 2 and February 24, covering 50 hr. flying time, and that it was responsible for shooting down six enemy planes over Tunisia and Sardinia. On its thirteenth sortie *New York Central* was damaged, and made a crash landing. It has now been repaired, but has been withdrawn from combatant duty for service behind the lines. The squadron now flying and servicing the plane includes a sergeant who was an employee in the New York Central passenger accounting office, and who was one of the contributors to the purchase fund.

## Antofagasta (Chili) & Bolivia Railway Co. Ltd. Annual Meeting

The annual general meeting of the Antofagasta (Chili) & Bolivia Railway Co. Ltd. was held at Winchester House, Old Broad Street, London, E.C.2, on July 15. Mr. A. G. Hunt, Chairman & Managing Director of the company, presided.

The Chairman, in the course of his statement, which was circulated with the report and accounts, said that from the combined railway and waterworks undertakings the gross receipts for the past year had amounted to £1,192,504, an increase of £181,611 compared with the previous year. Most of this increase had been absorbed by additional expenditure and the net surplus for the year of £162,424 was only £29,322 more than that for 1941. Passenger traffic had improved; the total number of passengers carried was 572,754, an increase of 16 per cent. Receipts, however, were 38 per cent. greater, due mainly to the higher tariffs in force from October last. The improvement in the passenger traffic was also reflected in the revenue from luggage and parcels. Of public goods traffic, 1,197,822 tons was carried, an increase of 39,457 tons compared with 1941; the receipts showed an increase of £150,141.

Only two nitrate oficinas were working during the year and nitrate carried totalled 95,649 tons, a decrease of nearly 13,000 tons as compared with 1941. Copper bar traffic was well maintained; the 226,534 tons carried showed an increase of 1,145 tons compared with 1941, which itself was a record year for that traffic. With the demand for copper for war purposes the present output was likely to be continued. The tonnage of sulphur showed a decrease of nearly 9 per cent. on the 1941 figures, but receipts were greater by reason of the longer average haul. Of tin barrilla 75,945 tons was carried, an increase of nearly 13 per cent.; there was also an appreciable improvement in the tonnages carried of antimony ores and zinc blends.

"Up" traffics generally had been well maintained, though there was a falling off in imports into Bolivia of articles for the mining industry, due to difficulty in obtaining goods and to lack of shipping space. On the other hand general merchandise, particularly for points on the Chilean section, showed an appreciable increase. The limitation of petrol supplies had forced many of the motor lorries off the road and in consequence brought back to the railway some of the traffic which would otherwise have been carried by road.

Working expenses were £1,030,080 or about 17 per cent. more than for 1941. The increase was explained in part by the greater volume of traffic handled; other contributory causes were the increased currency salaries and wages and higher prices for all materials, especially fuel. The salaries and wages bill was up by nearly £100,000 and the fuel bill by some £60,000. The salaries and wages bill was affected not only by the general increase granted to the Bolivian section staff in October, 1941, but by a further general increase which came into force from October 1, 1942, and for the Chilean section in accordance with an arbitration award the workmen were granted as from July 1, 1942, an increase in wages and a family allowance per dependent per month. The company had been able to obtain some compensation for these increased costs by a 14 per cent.

increase in the tariffs for the Chilean section which had come into force on October 12, and a varying but substantial increase in the tariffs of the Bolivian section which took effect as from October 26.

As to prospects for the current year, traffic receipts showed an increase to date of some £147,000. Expenses also had increased, notably for fuel, but on the other hand the company had the benefit of the general increases in tariffs which came into force in October last, and the returns so far received of the results of the first few months of the current year compared favourably with the corresponding period of 1942.

The report and accounts were adopted.

## Ruston & Hornsby Limited

Mr. George Ruston Sharpley, Chairman & Managing Director, in the course of his speech at the 54th annual general meeting on July 8, said that the company had continued its policy of conserving and building up its resources in order to meet the grave problems which would arise when the war was over and reconstruction commenced. For years export trade had represented the greater part of this company's business. It had had one of the most complete and comprehensive organisations therein and from long experience understood the problems hitherto entailed.

Among the difficulties which would have to be confronted after the war would be the development of internal manufacture by certain countries which had hitherto bought from Great Britain and the repercussions resulting from certain overseas competitors having installed immense factories for building internal combustion engines for war purposes. By building a limited range of engines in large quantities they would be able to sell at prices at which the numerous smaller English manufacturers would be unable to compete unless the latter put their house in order. This could be done only by closer co-operation, probably by resolving themselves into groups, each firm building a limited number of sizes and types so that the complete group covered a comprehensive range which could be dealt with by a combined export sales organisation. War experience had shown that where members of an industry mutually decided that each should concentrate upon a limited range of product, enhanced output at lower cost was achieved.

All the foregoing problems would require considerable finance, especially as survival presupposed up-to-dateness of product. This meant more money being spent on scientific engineering research. One form of assistance which the Government could give would be to amend the basis for arriving at E.P.T. "standard profit." The unfairness of the present method meant that very few companies had been able to create adequate reserves out of which to finance a progressive post-war policy. The "standard period" in America was introduced after their entry into the war and included a time when American manufacturers were very busy producing war materials for this country. They were able to earn satisfactory profits and build up big reserves.

The report was adopted.



## On the Footplate of L.M.S. Turbine Engine No. 6202

By E. S. Waterhouse

For some while the L.M.S.R. turbine locomotive, No. 6202, has been shedded at Camden, working the 8.30 a.m. each day to Liverpool and the 5.25 p.m. back; Camden and Edge Hill links share the working. By the courtesy of Mr. T. W. Royle, Chief Operating Manager of the L.M.S.R., I was permitted a footplate trip recently. A full description of this engine is hardly needed, for she has been at work since 1935, but a few details may be mentioned. No. 6202 was built to the design of Sir William Stanier and is the only direct-gear, non-condensing, double turbine locomotive in existence, though there are some Swedish locomotives of which she may be said to be a development. Her turbine develops over 2,000 h.p. and drives through a treble reduction gear. She has six nozzles for the forward turbine and three for the reverse, and an "inching-gear" which, by giving the reversing shaft half a tooth turn, allows full engagement when the teeth have come to a stop opposite one another.

In main outline, however, she is similar to the "Princess Royal" class, except for the modifications needful for the turbines and their casing, and has a remarkably neat and clean outline, with double chimney and domes. The cab contains a number of unusual gauges to indicate the quantity, temperature and pressure of the oil; the transmission shafts and gears are enclosed and lubricated by two pumps in the sump. There is also a steam chest pressure gauge, speedometer, and sand-gun, as well as the usual fittings. The chief dimensions are, total evaporative surface 2,168 sq. ft., superheater 832 sq. ft., driving wheels 6 ft. 6 in., pressure 250 lb. Total weight of engine, 110 tons 11 cwt.; of tender 54 tons 13 cwt. Grate area is 45 sq. ft.

Driver Birch and Fireman E. Foster of Edge Hill were in charge and Fitter Broach of Crewe travelled up with us. The load was 475 tons tare. Before starting the regulator was opened out full and fixed back. It is used only as a stop valve, and was left open until running down into Lime Street. We started on two nozzles easily. The experience was almost uncanny, no sharp beat of the exhaust, just a hum to break the silence as we glided out, and incidentally all the way no sign of slipping. As we mounted the bank a third nozzle was opened. The exit was leisurely and though Willesden, 5½ miles, required 13 min. of the 28 min. given to our first stop, Watford; the remaining 12 miles needed only 14½. From Watford to Rugby, 65 miles, 76 min. are booked and 74 min. were taken, with a maximum of 75 m.p.h. at Cheddington. Between Tring and Bletchley we averaged exactly 70 m.p.h., but it did not seem more than 50 m.p.h., so smooth was the running. For the 51 miles from Rugby to the next stop, Stafford, 1 hr. is allowed, but a long signal stop at Tamworth made us 7 min. late there, 3 of which were regained by a good run on to Crewe with a maximum of 75 m.p.h. near Madeley. From Crewe our load was only 9 bogies, and though we left 4 min. late, had a long wait at Hartford for signals and signals again near Run-corn; we were only 3 min. late in.

My return was made by the 10 a.m.

from Lime Street next day with stream-line Pacific No. 6243 City of Lancaster, and 510 tons tare.

The turbine engine has the reputation of being dirty to ride on because of the soft blast. But the shields now fitted in front have remedied this, and I was much more begrimed when I stepped off the streamliner than when I left the turbine engine. As far as I could judge the coal consumption of the two was relatively equal; the fireman of the turbine engine fired rather more frequently, but put on rather less each time, so that on average it would have worked out much the same. In each case a good fire was kept up; pressure just under the blowing-off point all the way, and a good level of water, were maintained. The turbine engine has enormous power in hand. It is, I find, very unusual to require more than three of the six nozzles to be opened on any trip, and for a long way from Rugby, including the rise of 1 in 330 at Shilton, only one nozzle was in use.

## Danube—Save—Adria Railway

Danube-Save-Adria Railway is the title given since 1918 to the former privately-owned Südbahn of Austria, which served many important parts of the old Austrian Empire. Its properties have now been divided up among various countries. The sections transferred to Germany are the following:—

	miles
Vienna—Graz—Laze main line	259
Bruck—Leoben branch	10
Wiener—Neustadt—Schattendorf branch	18
Maribor—San Candido branch	194
Pragersko—Sredice branch	38
Zidani Most—Dobova branch	35
Küfstein—Innsbruck—Brenner main line	68
	622

Laze (Laas/Sawe) is the frontier station in respect of the Italian Zone 9 miles before Ljubljana. San Candido (Innichen) is the Italian frontier station; the German frontier station is Sillian, 8 miles further to the east. Stredisce (Polstrau) is the frontier station between the German Zone and the Hungarian Zone. The Zidani Most (Steinbrück) to Dobova (Brückel/Steiermark) section includes the eastward extension as far as the Croatian frontier station of Savski Marof. Hungary has 373 miles of Südbahn line, including:—

	Miles
Budapest—Nagykanizsa—Murakeresztur—Čakovec	167
Murakeresztur—Barcs branch	43
Nagykanizsa—Szombathely—Sopron	112
Agfalva	51
Székesfehérvár—Komarno branch	51

Agfalva (Schattendorf) is the Hungarian frontier station where the line to Wiener-Neustadt begins.

To Croatia has been assigned the working of the Sutla-Savski Marof-Zagreb line of 16 miles, i.e., the easternmost section of the Zidani Most-Zagreb line, and the Zagreb-Sisak line of 31 miles. Croatia has, in addition, purchased the Barcs-Pakrac line.

The railways taken over by Italy are:—

	miles
Zalog—Trieste main line	97
Zalog—Laze connection	4
San Pietro del Carso—Fiume branch	37
Aurisina—Gorizia—Cormons branch	29
Brenner—Franzensfeste—Ala main line	115
Franzensfeste—Innichen branch	40

The Italian name for Franzensfeste is Fortezza, and for Innichen it is San Candido. Zalog is the frontier station in the Italian-occupied Yugoslav territory, 4 miles to the south-west of Laze. Aurisina Junction is 9 miles from Trieste Central Station on the Trieste-Zalog line. Ala is 32 miles

to the north of Verona on the Trento-Verona section.

By taking over the lines of the Danube-Save-Adria Railway, the four countries were not actually vested with the full ownership of the lines concerned, but were granted only running powers in addition to certain property rights. None of the four countries is entitled to sell or to pledge the lines so taken over, nor is the company entitled to do so. In principle, the full ownership of the lines remains with the company up to the end of 1968, and the headquarters remains at Vienna, with a board reduced from 29 to 18, including two members each appointed by the partner states. Nationalisation of the lines is, however, possible before that date at the option of the country concerned. Any one of the four partner countries may acquire full ownership of the D.S.A. lines in its territory by surrendering to the company debentures and coupons in arrear to the value of at least half the annual amount due to the company, the annuity being in this case capitalised for 27 years at the rate of 3 per cent.

An agreement was concluded at Brioni on August 10, 1942, between the four countries, as mentioned in *The Railway Gazette* of June 4 last. It has been ratified by them all and became operative as from January 1, 1942, and the locomotives and rolling stock have been taken over *pro rata* by Croatia, Germany, and Hungary. The stock allotted to the portion of the system which had come to be situated in Italy had been taken over by the Italian State Railways as far back as 1923.

## Staff and Labour Matters

### Catering Wages Act

The Catering Wages Act, which received Royal assent on June 10, makes provision, amongst other things, under which a catering wages commission is to be established by the Minister of Labour & National Service and under the powers conferred on him by the Act the Minister, after consultation with the organisations representing employers and workers respectively, has appointed the following members of the catering wages commission:—

(a) Persons chosen as being independent persons:—  
Mr. Hartley Shawcross, K.C. (Chairman).  
Mrs. Hermione Hitchens.  
Professor T. M. Knox.

(b) Persons chosen to represent employers:—  
Mr. John E. Greenwood, LL.B., A.C.A.  
Captain H. W. J. Powell, F.S.I.

(c) Persons chosen to represent employed persons:—  
Mrs. M. J. Robinson.  
Mr. G. W. Thomson.

The persons appointed as members of the commission are to hold office for a period of three years provided that in the case of members chosen to represent employers and employed persons the Minister may by notice at any time terminate their appointment if, in his opinion, they cease to be qualified to represent the views of employers and employed persons respectively, or if, in his opinion, they become directly connected with the hotel or catering trades.

### N.U.R. Annual Conference

The annual conference of the National Union of Railwaymen was held at Carlisle this year and opened on July 4.

In his presidential address Mr. F. J. Burrows reviewed the activities of the union during the past twelve months. He referred to the closer working arrangements between the three railway trade unions, the National Union of Railwaymen, Associated Society of Locomotive Engineers &

Firemen, and the Railway Clerks' Association, and said that in the difficult post-war world unity of purpose and action would be more than ever necessary. The policy of the National Union of Railwaymen, he said, was for an amalgamation of the trade unions to form one railway trade union and would be pursued at all times.

He referred to the railway agreement which he described as a very good bargain for the Government and the railway stockholders.

Turning to the war situation Mr. Burrows said that transport would be a vital factor in the months ahead and he called on every worker on the railway system of this country to give that added ounce of effort necessary to hasten final victory.

#### Rail Shopmen War Increase

A further meeting of the Railway Shopmen's National Council was held in London on July 19 in connection with the claim of the trade unions for an increase of 10s. a week for railway workshop staff, and agreement was reached on an increase in the war bonus of 4s. 6d. a week for adults, male and female, with appropriate increases for juniors. The settlement applies to time-workers and piece-workers, and will take effect as from April 26 last.

### Questions in Parliament

#### Thefts on Transport

Mr. J. H. Wootton-Davies (Heywood and Radcliffe—C.) on July 8 asked the Secretary of State for the Home Department whether he would introduce legislation to increase the penalties for thefts and pilfering on all forms of transport, in view of the growth in the numbers of this sort of crime.

Mr. Herbert Morrison (Secretary of State for the Home Department): I fully share Mr. Wootton-Davies' anxiety about this type of offence, which must be considered, particularly in wartime, as extremely serious and deserving of severe punishment. The existing maximum penalties, which range from seven years' penal servitude in cases of simple larceny to 14 years for larceny by a servant, or from ships or docks, or if the stolen article is controlled cannot, I think, be considered inadequate. The real problem is one of detection, and this has been the subject of consultations between the Minister of War Transport and myself. The action we have taken, I hope, will be effective in securing the conviction and adequate punishment of increasing numbers of offenders.

#### Railway Freight Charges

Lieutenant-Colonel C. N. Thornton-Kemsley (Kincardine and Western—C.) on July 13 asked the Prime Minister whether he would move to appoint a Select Committee to consider the advisability of introducing equalised rates of freight charges for railway transport as a means of encouraging the economic rehabilitation of the countryside and the redistribution of industry.

The Prime Minister (Mr. Winston Churchill) stated in a written answer: The present system of railway rates provides for scales of charges per ton per mile which taper as the distance increases, and also for the application of exceptional rates where circumstances warrant them. While I do not think that it would be opportune or advisable to appoint a Select Committee to consider the introduction of flat rates irrespective of distance, the effect of railway charges upon the distribution of our economic activities will be borne in mind by His Majesty's Government in their consideration of future transport policy. (See editorial note, page 77).

#### Milk Transport Rates

Mr. J. H. Wootton-Davies (Heywood & Radcliffe—C.) on July 14 asked the Parliamentary Secretary to the Ministry of War Transport why in two cases of milk transport which had been laid before him the transport charge was 0.97d. per gallon for between 11 and 12 miles and 2½d. per gallon for about six miles, respectively, the volume of milk carried being much the same in each case.

Mr. P. J. Noel-Baker (Joint Parliamentary Secretary to the Ministry of War Transport) stated in a written answer: The road haulage rates for the collection of milk from producers are arranged with the hauliers by the Milk Marketing Board, and I regret that I have no particulars of the rates in operation.

#### Lincolnshire Level Crossing Accident

Mr. W. Thorne (Plaistow—Lab.) on July 14 asked the Parliamentary Secretary to the Ministry of War Transport, if he could give any information in connection with two boys who were killed at a level crossing on July 3, in Lincolnshire; why were the crossing gates not closed a few minutes before the train was due; and what action he intended taking to prevent another accident at the same crossing.

Mr. P. J. Noel-Baker in a written reply stated: I have received a report about this regrettable accident, and the circumstances are being investigated. When these enquiries are complete, I will inform Mr. Thorne of the result. I would like to express my deep sympathy with the relatives of the two children who lost their lives.

#### Ingatestone Train Service

Mr. R. R. Stokes (Ipswich—Lab.) on July 14 asked the Parliamentary Secretary to the Ministry of War Transport whether he was aware that no down train stopped at Ingatestone on Sundays between 9.25 a.m. and 3.11 p.m.; that a train left Liverpool Street at 11.50 a.m. stopping at all stations between Romford and Chelmsford except Ingatestone; that an appeal to the London & North Eastern Railway Company that this train should stop at Ingatestone had received no reply other than formal acknowledgment; and whether he would make representations to the company with a view to a better service being afforded.

Mr. Noel-Baker in a written answer stated: The London & North Eastern Railway had carefully considered the suggestion that the 11.50 a.m. from Liverpool Street should stop at Ingatestone. It reports that there is not sufficient demand to justify the stop and the resulting changes in the timetable which would be required. If the situation should change, the company will reconsider the matter before the winter timetable is drawn up.

#### Blackpool Transport Services

Mr. William Brown (Rugby—Ind.) on July 14 asked the Parliamentary Secretary to the Ministry of War Transport, whether he was aware that the feeding and transport of workers, including evacuated civil servants, in Blackpool, was being seriously impeded by the presence of large numbers of holiday-makers; and whether he would arrange that these workers should be issued with priority tickets entitling them to priority for seats in tramcars, restaurants, etc.

Mr. Rhys Davies (Westhoughton—Lab.) also asked the Parliamentary Secretary to the Ministry of War Transport, if he could make a statement on the recent incident when Ministry of Health employees at Blackpool blocked the traffic as a protest by standing and lying on the tram rails.

Mr. Noel-Baker stated in a written answer: The Regional Transport Commissioner is making a full investigation into the transport situation in Blackpool, and into the difficulties experienced by civil servants in travelling to and from their work. In the meantime, inspectors have been stationed to observe the loadings, and to assist workers to find accommodation in the trams.

#### West Yorkshire Road Car Co., Ltd.

Mr. Ivor Thomas (Keighley—Lab.) on July 14 asked the Parliamentary Secretary to the Ministry of War Transport whether he was aware that the West Yorkshire Road Car Co., Ltd., had not withdrawn contract tickets on routes competitive with other services; and whether, in view of the discrimination thus created among travellers, he would issue instructions for the renewal of contract tickets.

Mr. Noel-Baker wrote in reply: The Regional Transport Commissioner has begun discussions on this subject with the competent authorities. The issue of the contract tickets to which Mr. Thomas refers is a temporary measure, and I will inform him as soon as possible of the decision which is made.

#### Isle of Man Steamship Service

Mr. Rhys Davies (Westhoughton—Lab.) on July 14 asked the Parliamentary Secretary to the Ministry of War Transport whether he had any statements to make on the recent disturbance, when the police had to intervene, at Fleetwood, because several hundred passengers failed to secure accommodation on a steamer to the Isle of Man; and whether any tickets were issued in advance for the journey.

Mr. Noel-Baker, in a written answer, stated: I am aware that at recent weekends it has not been possible to carry all the passengers who desire to travel from Fleetwood to the Isle of Man. I regret that it is not possible to adopt the normal remedy of putting on an extra vessel, because all the suitable ships are engaged on essential war service. There is no authorised machinery for issuing tickets in advance and there would be great administrative difficulties in any system of advance booking. The Minister of War Transport has the matter under close observation and will make every endeavour to avoid further incidents of the kind to which Mr. Rhys Davies refers. The real remedy, however, lies in the hands of the public.

#### Producer-Gas Transport

Mr. James Griffiths (Llanelli—Lab.) on July 14 asked the Parliamentary Secretary to the Ministry of War Transport, what further progress had been made with the use of producer-gas transport; how many vehicles were now using this means of propulsion; and if any plans were being made for its development after the war.

Mr. Noel-Baker, stated in a written answer: Two thousand units of the Government producer-gas apparatus have been despatched from the factory to the operators of public service vehicles. There has been difficulty in getting labour and materials to convert the vehicles and to build the servicing accommodation which they require, but everything possible has been done to make progress. The tools which we hoped to use for making units for goods vehicles were diverted to the manufacture of high priority appliances required for military operations. In consequence, there has been a regrettable delay, but I am glad to assure Mr. Griffiths that goods vehicle units are now leaving the assembly lines.



## Notes and News

**Charles Roberts & Co. Ltd.**—An interim dividend has been declared of 10 per cent. less tax on the ordinary stock, payable July 28.

**Innsbruck Local Railways.**—For the year 1942, the Stubaitalbahn A.G. of Innsbruck showed a substantial decline in net profit. The majority holding in the share capital is held by the Innsbruck Municipality, and the services have been operated by the Innsbrucker Verkehrsbetriebe A.G. since the autumn of 1941.

**Chief Draughtsman & Technical Instructor Required.**—The Nigerian Railway requires a Chief Draughtsman & Technical Instructor for the duration of the emergency, or for one tour of 12 to 24 months, whichever is the shorter period, with possibility of permanency. Details are given in our Official Notices on page 99.

**Staff Required for Palestine Railways.**—Applications are invited by the Ministry of Labour & National Service for the post of Locomotive Erecting Shop Foreman, and for positions as Assistant Traffic Superintendents and Assistant District Engineers, with the Palestine Railways. Details are given in our Official Notices on page 99.

**Railway Control Agreement.**—The British Railway Stockholders Union Limited has published a letter from the Treasury, received a few weeks ago by a member of the union in response to his private inquiry, to the effect that no prospect can be held out that the Government would be willing to reconsider the terms of the railway control agreement.

**Motor Coaches Limited.**—At an extraordinary general meeting of this company (in voluntary liquidation) held on July 2, a resolution was passed appointing Mr. Geoffrey Hubert Walsh, C.A., of 88, Kingsway, London, and Mr. Robert Prentice, C.A., of Crewe House, Curzon Street, London, joint liquidators, for the purposes of the winding-up of Motor Coaches Limited, in place of the late Mr. Walter Edward Bennett.

**Reconstruction of the Transandine Railway.**—Reconstruction of the Mendoza-Punta Vacas section of the Transandine Railway linking Argentina and Chile, which was destroyed by flood some years ago, is reported to be progressing well, and it is believed that the whole section will be opened to rail traffic by the end of February, 1944. Traffic over the section from Mendoza to Uspallata was resumed early in June, and the former road traffic service between Mendoza and Punta Vacas now operates only between the latter point and Uspallata.

**Nord Railway Sterling Bonds.**—With the approval of the relevant British Government departments, Messrs. N. M. Rothschild & Sons, agents for the 6 per cent. sterling loan of the Nord Railway Company, have obtained from neutral sources—not from the company—official copies of the drawings of these bonds made by the company on September 1, 1940, 1941, and 1942. In view of this information the Stock Exchange Committee for General Purposes has confirmed a resolution:—“That under Rule 20 the provisions of Rule 113 be waived (1) in respect of all dealings which have taken place in Nord Railway Company six per cent. sterling bonds since July 3, 1939; (2) in respect of future dealings in Nord Railway Company six per cent. sterling bonds until further notice.” This is in effect a decision to

ignore the drawings for the time being, and to continue to regard drawn and undrawn bonds as of equally good delivery.

**Smyrna Trams Municipalised.**—A recent report from Istanbul states that negotiations between the representatives of the Izmir (Smyrna) electricity and tram company and the Turkish Ministry of Public Works concerning the purchase of the power station and tram system by the Izmir municipality have now been completed. The undertaking will change hands as soon as the agreement is signed.

**Transport Improvements for Switzerland.**—A great programme of work schemes drawn up by the Swiss Government to provide occupation for the unemployed includes the following sums for the development of the means of transport in the country:—

	Sw. fr.
Swiss Federal Railways	760,000,000
Ordinary roads	540,000,000
Alpine roads	254,000,000
Private railways	250,000,000
Airways	200,000,000
Waterways	190,000,000

**First Hungarian Electric Streamline Locomotive.**—The first streamline electric locomotive built in Hungary was completed a few days ago, according to a message dated June 12, and is now undergoing trials on the 122-mile main line between Budapest and the Austrian frontier at Hegyeshalom. This locomotive, which was built by the Magyar Waggon-és Gépgyár (Hungarian Wagon & Locomotive Works), of Budapest, is stated to develop 5,500 h.p., and to have a maximum speed of 125 km.p.h. (78 m.p.h.).

**German Minor Railways.**—A further batch of reports for 1942 has reached us concerning German light railways. They show satisfactory financial results, as might be expected in view of the curtailment of road traffic. The companies concerned are the Rheinische Bahngesellschaft A.G. of Düsseldorf, the Dürener Eisenbahn A.G., and the Lehniner Kleinbahn A.G. The last-named light railway company owns and works the 7-mile line between Gross-Kreuz and Lehnin. Gross-Kreuz is on the Berlin-Brunswick main line, 29 miles from the Potsdamer Bahnhof.

**Budapest Underground.**—Preliminary drillings to explore the geological nature of the strata to be traversed by the new lines of the Budapest Underground railway are reported to have yielded satisfactory results so far, and it is now stated that the construction of the new system, envisaged for the immediate post-war period, should not encounter very great difficulties. The length of the only existing underground line in Budapest (opened in 1896) is 2½ miles. The four proposed new lines will connect the various Budapest main-line railway stations, and will comprise a system with a route-length of some 18 miles. Details of the intended system were published in *The Railway Gazette* of July 24, 1942.

**Cheddington Concrete Sleeper Site.**—Mr. W. K. Wallace, Chief Engineer, L.M.S.R., has arranged for members of the London Section of the Permanent Way Institution to visit the Cheddington concrete sleeper site on Saturday, July 31. Members are asked to meet at Euston in time for the 1.45 p.m. train, which calls at Watford 2.13 p.m., and arrives at Cheddington at 2.48 p.m. The concrete sleeper site is 1½ miles from the station, and during the walk it has been arranged for members to inspect two types of joints, namely, the Brogden and the Leigh. The expected time of arrival at the site is 3.30 p.m. It is

proposed to leave there at 4.30 p.m., and reach Cheddington in time for a cup of tea, before catching the 5.32 p.m. train, which arrives at Euston at 7.2 p.m.

**The St. Anton Rope Railway.**—The Bergbahn A.G. of St. Anton am Arlberg (Tyrol) owns and operates the rope railway between St. Anton am Arlberg (on the Bregenz-Innsbruck main line, 62 miles west of Innsbruck) and the summit of the Galzig Mountain. The company has reported that, despite adverse general circumstances, traffic rose by 6 per cent.

## British and Irish Railway Stocks and Shares

Stocks	Highest 1942	Lowest 1942	Prices	
			July 16, 1943	Rise/ Fall
G.W.R.				
Cons. Ord. ....	58	39	62	— ½
5% Red. Pref. (1950) ..	115½	105½	113½	+ ½
5% Rt. Charge .....	133½	123½	126½	+ 1
5% Cons. Guar. ....	130½	121½	125½	+ 1
4% Deb. ....	117	105	109	— 1
4% Deb. ....	118	108	110½	— ½
4% Deb. ....	125	113	118½	— 1
5% Deb. ....	137	127	129	— 1
2½ Deb. ....	77	70	75½	— ½
L.M.S.R.				
Ord. ....	28½	16½	32½	— ½
4% Pref. (1923) ....	63½	50½	63	+ ½
4% Pref. ....	76½	67½	77½	+ ½
5% Red. Pref. (1955) ..	103½	94½	103½	— ½
4% Guar. ....	104½	97½	101	+ ½
4% Deb. ....	108½	101½	104½	+ ½
5% Red. Deb. (1952) ..	111	107½	109½	— ½
L.N.E.R.				
5% Pref. Ord. ....	9½	2½	10½	+ ½
Def. Ord. ....	5	1½	4½	+ ½
4% First Pref. ....	62	49½	63	+ ½
5% Second Pref. ....	95½	79	97½	+ ½
4% First Guar. ....	98	88	98½	+ ½
4% Second Guar. ....	90	78	91½	+ ½
4% Deb. ....	85	76	80½	+ ½
4% Deb. ....	106½	100½	103	— ½
5% Red. Deb. (1947) ..	106	103	104	— ½
4% Sinking Fund Red. Deb. ....	106	102½	105½	— ½
SOUTHERN				
Pref. Ord. ....	77	61½	76	— ½
Def. Ord. ....	23½	14½	24½	+ ½
5% Pref. ....	112½	104½	112½	+ ½
5% Red. Pref. (1964) ..	110½	105½	112	+ ½
5% Guar. Pref. ....	131	121½	125½	+ 1
5% Red. Guar. Pref. (1957) ....	115½	109½	114½	+ ½
4% Deb. ....	116	104½	108	— ½
5% Deb. ....	134	125½	129	— ½
4% Red. Deb. (1962- 67) ....	110½	106	107½	— ½
4% Red. Deb. (1970- 80) ....	111	106½	107½	— ½
FORTH BRIDGE				
4% Deb. ....	109½	108	106	— ½
4% Guar. ....	105½	100	104½	— ½
L.P.T.B.				
4½% "A" ....	122½	111	117½	+ 1
5% "A" ....	131½	122	127½	+ 1
3% Guar. (1967-72) ..	95½	97½	99	— ½
5% "B" ....	121	111½	115½	— ½
5% "C" ....	56½	38	63½	+ 1
MERSEY				
Ord. ....	27½	20½	31	— ½
3% Perp. Pref. ....	61½	56½	61	— ½
4% Perp. Deb. ....	102½	99½	104	— ½
3% Perp. Deb. ....	80½	76	79	— ½
IRELAND				
BELFAST & C.D.				
Ord. ....	9	4	9	— ½
G. NORTHERN				
Ord. ....	29½	12½	18½	— ½
G. SOUTHERN				
Ord. ....	25	10	10½	+ ½
Pref. ....	29	12½	15	+ ½
Guar. ....	53	35½	33½	+ 2
Deb. ....	71½	55½	56½	+ 2

§ ex-dividend



## OFFICIAL NOTICES

## South Africa

**POST War Development in South Africa opens great opportunity for Manufacturers in Great Britain and America.**

A British Company with ample finance and having been established in South Africa for over 40 years, with Branches and Depots at Johannesburg, Durban, Port Elizabeth and Cape Town, and whose Clientele includes the South African Railways, South African Harbours and Ships, City and Municipal Councils, Mining Companies, Building and Public Works Contractors, is prepared to consider the representation of Firms manufacturing Railway Rolling Stock and Equipment, Road Construction Plant, Builders' Supplies, Road Transport Vehicles, Mining Supplies, Timber Supplies and any articles of an engineering or building description, as well as Stores and Materials used by the above Consumers. Apply in first instance to Box 186, c/o The Railway Gazette.

**OVERSEAS EMPLOYMENT.**—A Chief Draughtsman and Technical Instructor is required for the Civil Engineering Department of the Nigerian Govern-

ment Railway for the duration of the emergency or for one tour of 12 to 24 months, whichever is the shorter period, with possibility of permanency. Salary £660 rising to £840 a year. Free passages and quarters and medical attention. Candidates must have had experience in the design and preparation of working drawings and details for railway structures and bridges, track layout, water supplies and reinforced concrete, and they should be capable of taking out bills of quantities and estimating. Written applications (no interviews), giving full particulars of age, National and Armed Forces Registration numbers, training, qualifications, experience, and name of present employers, should be sent to The Secretary, Overseas Manpower Committee (Ref. 968), Ministry of Labour & National Service, Sardinia Street, Kingsway, London, W.C.2.

**OVERSEAS EMPLOYMENT.**—The following are required for the Palestine Government Railways for three years or for the duration of the emergency, whichever is the shorter period, with possibility of permanency. Free passages. Salary according to qualifications and experience, as shown below. (£P = £ sterling.)

**LOCOMOTIVE ERECTING SHOP FOREMAN.**—Candidates must have served an apprenticeship as

locomotive fitter on a British railway or with a firm of Locomotive Builders and have had subsequent experience in the erection, repair, and maintenance of locomotives, preferably in a supervisory capacity. Fixed consolidated salary between £P484 and £P574.

**ASSISTANT TRAFFIC SUPERINTENDENTS.**—Good all-round training on a British railway and experience on inside and outside work essential, preferably in operating and commercial departments. Fixed consolidated salary between £P398 and £P698.

**ASSISTANT DISTRICT ENGINEERS.**—Candidates must have had at least three years' experience of Railway Civil Engineering work and should preferably be Associate Members of the Institution of Civil Engineers or hold a degree exempting them from Sections A and B of the Institution's examination. Fixed consolidated salary between £P398 and £P698 a year.

Written applications (no interviews), giving full details of age, National and Armed Forces Registration numbers, apprenticeship or training, experience, and name of present employers, should be sent to The Secretary, Overseas Manpower Committee (Ref. 967), Ministry of Labour & National Service, Sardinia Street, Kingsway, London, W.C.2.

and receipts by 3 per cent. in the year ended June 30, 1942, compared with the previous year. The company's shareholdings include a new participation in the Skilift A.G. of Innsbruck. The St. Anton rope railway negotiates a difference in level of 2,525 ft. (770 metres); the summit reached is 6,822 ft. (2,080 metres) high.

**A Banking Centenary.**—The Yorkshire Banking Company, now an affiliated undertaking of the Midland Bank, celebrated its centenary early this month. It was established in Leeds, and helped to finance some of the country's earlier railway developments. The Bank Act of 1844, which limited provincial note circulations, permitted the Yorkshire Banking Company a circulation of £123,000, the largest for any bank in the County of Yorkshire.

**Uruguay Northern Moratorium.**—A meeting of the holders of the 5 per cent. prior lien debenture stock of the Uruguay Northern Railway Company is to be held on July 27 for the purpose of approving the further postponement of payment of arrears of interest, and also the further interest payable on August 1 1943, and February 1, 1944. The meeting will also be asked to give power to the committee to extend the moratorium to cover the four following years.

**G.W.R. Home Guard & Civil Defence Parade.**—Lt.-General Sir Arthur F. Smith, K.B.E., C.B., D.S.O., M.C., G.O.C. London District, accompanied by Major-General the Right Hon. Lord Bridgeman, D.S.O., M.C., Director-General, Home Guard and Territorial Army, and the Right Hon. Lord Leathers, P.C., C.H., Minister of War Transport, will take the salute at the Great Western Railway (London Division) Home Guard and Civil Defence Parade at Castle Bar Park, Ealing, on Sunday, July 25, at 3 p.m. About 1,000 members of the Home Guard and Civil Defence will take part, representing units from London, Slough, Maidenhead, High Wycombe, Reading, Aldermaston, Newbury, and Oxford. Music will be provided by the Band of H.M. Coldstream Guards.

**Glyn, Mills & Co.**—The capital of this old established private banking house, incorporating Child & Co. and Holt & Co., was acquired in the summer of 1939 by the Royal Bank of Scotland. In the 118th statement of assets and liabilities as at June 30, 1943, a sound position is disclosed. Total assets are £60,008,045, as against £55,890,550 at June 30, 1942. In the present assets are included: £5,359,518 (£5,476,100) in coin, bank notes, and balance at Bank of England; £2,907,766 (£3,189,651) balances with, and cheques in course of collection on, other banks in the

United Kingdom; £7,806,700 (£5,671,200) money at call and short notice; bills discounted £1,158,235 (£1,209,076); Treasury deposit receipts £5,500,000 (£5,000,000); and investments £21,135,985 (£20,686,991), including £20,559,373 (£19,894,173) in British Government securities. These items together represent 83.59 per cent. of the deposits of £52,476,765. The issued capital of £1,060,000 and the reserve fund of £850,000 are unchanged.

**Carnegie Award for L.M.S.R. Porter.**

—Without waiting to don rubber gloves, or to give the order to switch off the electric current, Leading Porter Phipps of the L.M.S.R. leapt on to the electrified track at Dagenham Station recently to assist a junior porter who had fallen across the line. Porter Phipps pulled the unconscious youth, whose clothes already were smoking, clear of the live rails and on to the platform, and applied artificial respiration, although he himself had sustained severe electric shock. In recognition of his heroism he has been presented with a cheque for £15 and a certificate by the Carnegie Hero Trust Fund. The presentation was made by Colonel J. W. Watkins, Divisional Superintendent of Operation, Derby, L.M.S.R., in the presence of the Mayor of Dagenham (Alderman Mrs.

Evans); Colonel H. Rudgard, Superintendent of Motive Power, L.M.S.R., Colonel J. N. Peck, District Civil Engineer; London, L.M.S.R.; and other representatives of the L.M.S.R. at a ceremony at Dagenham Station on July 14. Porter Phipps, who was invalided from the Merchant Navy before the war, during an air raid in October, 1940, climbed on to Dagenham Station roof to deal with a number of incendiary bombs.

**Canadian Pacific Steamships Limited.**

—A special resolution to alter the memorandum of association of this company, by enabling it *inter alia* to operate air services, was passed at an extraordinary general meeting on April 5 last. A petition to confirm this proposed alteration is directed to be heard before Mr. Justice Simonds in the Chancery Division on July 26. The terms of the resolution are as follow:—

That the provisions of the memorandum of association with respect to the objects of the company be altered by inserting therein, immediately after paragraph 3 (B), the following new paragraph:—

"(B.1.). To operate air services for the conveyance of passengers mails and goods in any part of the world either in connection with or independently of its steamship services and to design construct build acquire hold own maintain and employ such aircraft aerodromes accommodation and equipment as may be necessary or convenient in relation to the said air services."



Colonel J. W. Watkins, Divisional Superintendent of Operation, Derby, L.M.S.R., presenting a Carnegie Hero Trust certificate to Leading Porter Phipps, of Dagenham Station, in recognition of his act of bravery, details of which appear above, in rescuing a junior porter who had fallen on an electric track

### Railway Stock Market

Under the influence of the excellent war news, business in the stock and share markets improved, and there were numerous individual features of interest, although no general advance in values has been shown at the time of writing. Home railway debentures and guaranteed stocks reflected the upward trend in investment securities, and further gains were also recorded in senior and other preference stocks. The junior stocks failed to develop a buoyant tendency in front of this week's interim dividend decisions of the Southern and Great Western. Maintenance of the 2 per cent. interim dividend on Great Western ordinary is generally expected. The Southern does not make half-yearly payments on its deferred stock, but a 2½ per cent. interim on the 5 per cent. preferred is, of course, confidently expected. More interest will attach to next week's announcements, particularly the decision of the L.M.S.R. Moreover, there has been continued talk in some quarters of the market of the possibility of fractional increases in the payments on L.N.E.R. second preference and on London Transport "C," although the view prevails that all question of any increases will probably be left until the final payments. It is recognised that net earnings of the controlled railways are continuing to run at a higher level, but this will, of course, not have any effect on the income received under the rental

agreement. On the basis of the latter, dividends at last year's rates on the junior stocks must be regarded as the highest it may be prudent to expect, although in some instances payments could be fractionally higher if income were distributed up to the hilt. Sentiment in regard to home railway junior stocks has been affected to some extent by the intimation that no prospect can be held out that the Government will be willing to reconsider the terms of the financial agreement with the railways. Particularly in view of the trend in railway revenue so far, the agreement has in effect involved considerable sacrifices by stockholders, bearing in mind that existing earnings would allow dividends at the rates permitted by the Railways Act of 1921. On the other hand, it has to be remembered that more than a short view has to be taken, and that before the agreement is terminated, railway revenue is bound to show a downward trend, assuming that, as seems not unlikely, the existing fixed rental payment remains in force until there is a decision on transport organisation after the war. Moreover, it is hoped that the sacrifices so far made by stockholders will be borne in mind by the authorities and will be remembered when drawing up any post-war plans affecting the railways.

In accordance with the general tendency in home railway junior stocks, Great Western ordinary has reacted to

61½ at the time of writing, which compares with 62½ a week ago. On the other hand, prior charges have been very firm, and Great Western 5 per cent. preference and 4 per cent. debentures maintained recent gains to 113½ and 109 respectively. L.M.S.R. ordinary moved back a point to 32½; on the other hand, although best prices were not held, the senior preference was fractionally higher at 77½, as was the 1923 preference at 63, and the guaranteed stock held its recent rally at 101. Among L.N.E.R. stocks the first and second guarantees kept recent gains to 98 and 91 respectively; the 3 per cent. debentures were again 80½. L.N.E.R. first preference was slightly higher at 63, but the second preference eased to 35½. Southern deferred reacted from 25½ to 24½, and the preferred from 76½ to 76. Nevertheless, London Transport "C" showed further improvement 62½ to 64½. The latter reflects talk in some quarters of a slightly higher dividend, but is due mainly to the view that the post-war position of this stock appears to be more certain than that of junior stocks of the main line companies.

Among foreign railway securities, those of the Argentine railways, particularly debentures and preference stocks, showed a better tendency. Elsewhere, Great Western of Brazil ordinary and preferred were better, but United of Havana debentures declined on the moratorium extension announcement. Canadian Pacifics were easier.

### Traffic Table and Stock Prices of Overseas and Foreign Railways

Railways	Miles open	Week ending	Traffic for week		No. of Weeks	Aggregate traffic to date			Shares or stock	Prices						
			Total this year	Inc. or dec. compared with 1941/2		Totals		Increase or decrease		Highest 1942	Lowest 1942	July 16, 1943	Yield % (See Note)			
						1942/3	1941/2									
			£	£		£	£	£								
South & Central America	Antofagasta (Chili) & Bolivia	834	11.7.43	30,200	+	4,180	27	755,370	595,230	+	160,160	Ord. Sk.	14	7½	14	Nil
	Argentine North Eastern	753	10.7.43	12,504	894	2	17,520	19,788	2,268	6 p.c. Deb.	19½	10	20½	Nil		
	Bolivar	174	June, 1943	4,868	+	500	26	32,414	27,431	+	4,983	Bonds	20½	9	22	Nil
	Brazil	2,807	10.7.43	87,950	+	1,080	2	111,300	147,120	+	35,820	Ord. Sk.	7½	4	6½	Nil
	Buenos Ayres & Pacific	5,080	10.7.43	131,520	11,340	2	197,940	191,040	6,900	Ord. Sk.	12½	7½	12½	Nil		
	Buenos Ayres Great Southern	1,930	10.7.43	46,500	3,120	2	64,800	72,840	8,040	"	12½	6½	12	Nil		
	Buenos Ayres Western	3,700	10.7.43	110,607	10,992	2	151,827	179,307	27,480	"	9½	2½	9½	Nil		
	Central Argentine	Do.	10.7.43	31,890	7,592	2	44,098	34,764	9,334	Ord. Sk.	8½	4	6½	Nil		
	Cent. Uruguay of M. Video	262	May, 1943	22,861	7,210	41	173,827	228,220	54,393	Ord. Sk.	16½	11	14	Nil		
	Costa Rica	70	19.6.43	21,939	6,057	20	98,259	63,546	34,713	1 Mt. Db.	90½	89	94½	6½		
	Dorada	808	10.7.43	17,040	204	2	24,528	26,040	1,512	Ord. Sk.	33	4	7	Nil		
	Entre Rios	1,030	10.7.43	13,600	3,600	27	427,000	275,800	151,200	Ord. Sh.	9½	9½	56/3	Nil		
	Great Western of Brazil	794	May, 1943	\$646,832	\$85,592	20	\$3,312,644	\$3,159,152	\$153,492	"	9½	9½	56/3	Nil		
	International of Cl. Amer.	Do.	10.7.43	8,195	2,335	26	53,590	37,990	15,600	1st Pref.	1½	5/3	1½	Nil		
	Interoceanic of Mexico	22½	June, 1943	37,851	9,111	27	903,411	815,559	87,852	5 p.c. Deb.	11½	5	83½	Nil		
	La Guaira & Caracas	1,918	10.7.43	ps. 391,800	ps. 66,100	1	ps. 391,800	ps. 325,700	ps. 66,100	Ord. Sk.	1	1	1½	Nil		
	Leopoldina	483	7.7.43	15,947	993	48	168,895	152,464	16,431	"	77½	3½	78½	Nil		
	Mexican	319	May, 1943	4,453	8,551	26	71,093	84,628	13,535	Ord. Sh.	53	40	53½	11½		
	Midland Uruguay	382	30.6.43	\$5,412,000	\$1,559,000	2	\$6,973,000	\$6,666,000	\$307,000	Pr. Li. Sk.	19½	5½	15	Nil		
	Nitrate	274	9.7.43	104,734	22,552	52	1,045,065	915,630	129,435	Pref.	59	41	58½	3½		
	Paraguay Central	1,059	June, 1943	c 122,000	c 51,000	42	c 1,034,000	c 853,172	c 180,828	Ord. Sk.	59	41	58½	3½		
	Peruvian Corporation	100	April, 1943	48,446	12,201	27	1,040,708	965,346	75,362	Ord. Sh.	41½	23½	32/6	Nil		
	Salvador	153½	4.7.43	2,605	3,195	29	48,811	55,510	6,699	"	—	—	—	Nil		
	San Paulo	160	June, 1943	51,884	20,604	2	74,249	52,879	21,370	Ord. Sk.	8½	2½	6	Nil		
	Talca	1,301	10.7.43	1,666	483	48	15,772	13,266	2,506	"	—	—	—	Nil		
	United of Havana	73	May, 1943	—	—	—	—	—	—	—	—	—	—	Nil		
	Uruguay Northern	—	—	—	—	—	—	—	—	—	—	—	—	Nil		
Canada	Canadian Pacific	17,034	7.7.43	1,149,600	+	183,600	27	28,395,200	25,172,000	+	3,223,200	Ord. Sk.	16½	9½	16½	Nil
India	Bara Light	202	30.6.43	17,835	+	4,928	13	63,075	39,600	+	23,475	—	—	—	—	—
	Bengal & North Western	2,090	Nov., 1942	264,975	+	33,087	8	449,400	561,082	+	111,682	—	—	—	—	—
	Bengal-Nagpur	3,267	Feb., 1943	932,775	+	84,975	46	10,031,400	9,111,000	+	920,400	Ord. Sk.	102½	88	102½	3½
	Madras & Southern Mahratta	2,939	30.4.43	286,500	+	48,748	4	840,375	681,698	+	158,677	"	105½	87	107½	4
	Rohilkund & Kumaon	571	Nov., 1942	555,750	+	5,072	8	115,950	99,909	+	16,041	"	103½	88½	102½	4
	South Indian	2,349	20.4.43	191,693	+	10,877	3	380,790	359,828	+	20,962	"	103½	88½	102½	4
Various	Egyptian Delta	—	10.6.43	13,955	+	2,968	10	98,431	75,685	+	19,746	Pr. Sh.	5½	1½	4	Nil
	Manila	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Midland of W. Australia	277	May, 1943	34,519	+	7,674	48	355,515	229,955	+	125,560	B. Deb.	44	35	37½	9½
	Nigerian	1,900	31.3.43	51,142	+	29,172	51	3,606,468	3,266,869	+	339,599	Inc. Deb.	95	90	100	—
	South Africa	13,291	8.5.43	885,689	+	140,973	5	4,608,221	4,180,541	+	427,680	—	—	—	—	—
	Victoria	4,774	Jrn., 1943	1,480,058	+	169,521	—	—	—	—	—	—	—	—	—	—

Note. Yields are based on the approximate current prices and are within a fraction of ½

† Receipts are calculated @ 1s. 6d. to the rupee

Argentine traffic is given in sterling calculated @ 16½ pesos to the £

‡ ex dividend